

TRAVELS
ROUND THE WORLD;

IN THE YEARS

1767, 1768, 1769, 1770, 1771,

BY

MONSIEUR DE PAGÉS,

CAPTAIN IN THE FRENCH NAVY, KNIGHT OF THE
ROYAL AND MILITARY ORDER OF ST. LOUIS,
AND CORRESPONDING MEMBER OF THE
ACADEMY OF SCIENCES
AT PARIS.

TRANSLATED FROM THE FRENCH.

VOLUME THE THIRD

L O N D O N:

PRINTED FOR J. MURRAY, N^o 32, FLEET STREET.

M.DCC.XCII.

THE TRANSLATOR'S
ADVERTISEMENT.

THE Translator finding that these voyages were known to few English readers, was at considerable pains to obtain more particular information concerning the author, than could be collected from his works. After failing in several channels, he applied to a literary friend in a neighbouring kingdom, from whom he had the satisfaction to learn, that Mr. Pagés was at Paris about six years ago, but had failed soon after with his family for his estate in St. Domingo. Encouraged by this intelligence the translator addressed a letter to the

author at Baradaire in St. Domingo, and was favoured with an answer from that island dated the 1st of Nov. 1791.

After thanking the translator in polite terms, for doing him the honour as he expresses it, of introducing his work into the English language, Mr. Pagés gives reasons for having avoided in his Travels, such a detail respecting places and persons, particularly in what related to himself, as would have been agreeable to many of his French readers, as well as to the public at large.

He alludes to a favourite idea he entertained in his earlier years of

of penetrating into the interior parts of Africa, an object which probably made a part of his general plan; but observes that upon his return from his voyage towards the North Pole, having performed all his travels at his own expence, without any public remuneration, he did not find himself either in adequate circumstances, or youthful enough to encounter the difficulties of such an expedition. He continues however still in the same sentiments as to its practicability; and expresses some surprize that in a nation of the bold and enterprising spirit of Great Britain, no adventurer equal to the undertaking should have offered himself. The reader may find

some hints on this subject in his voyage to the South-Seas. And he adds in his letter, that it would be wise policy in a traveller, intending to pass through the interior parts of Africa, to submit to the rite of circumcision before his departure; to be particularly conversant in the language and manners of the Arabs; and above all to be divested of every species of prejudice, regarding himself simply as the child of nature detached from every local connection whatever. Thus prepared for his enterprize, Mr. Pagés would advise him to set out from the States of Tunis, or that neighbourhood, where there are natives of a mild character and fond of

of travelling, who would be willing to accompany him.

Don Angel de Martos, Governor of Tégas, Don Francisco Hoaresty, merchant in Mexico, Don Bassaras Oydou, and Anoria Pignoa, at Manilla and Acapulco, M. Retian and the Garrison at Batavia, Mr. John Hunter at Bombay, Perez and Briancourt at Surat, and the French Consuls at Bassora and Sidon, are amongst the respectable connections Mr. Pagé's formed on his travels.

His letter concludes with requesting the translator's correspondence, intimating at the same time that should his health enable him to put his papers in order, he may

perhaps be induced to give something more to the public.

Upon the whole it is not to be doubted that such as approve of Mr. Pagés's travels, will be pleased to be informed that this excellent man, equally distinguished for the modesty and purity of his mind, and for his genius as a voyager, is alive, and, though in an infirm state of health, is in a condition to enjoy the society of his wife and two daughters in his pleasant valley of Baradaire.

LONDON,
Nov. 1792.

I. I.

C O N-

C O N T E N T S.

V O L U M E III.

C H A P. I.

*Design of the Voyage—Departure from Brest
—Experiments made in different Latitudes on
Sea-water—The Line is crossed, and Martin
Vas's Isles seen at a Distance. Page 1*

C H A P. II.

*Sight of the Cape of Good Hope—Observations
made with the Megameter more correct than
those taken by the Sextant—Anchorage
in Simon's Bay—Remarks on the Mode of
preserving Vegetables for Sea Voyages, and
Precautions to be observed in their use—Re-
flections on the Hottentots, and on the Cor-
respondence established by Land between the
Inhabitants of Guinea and those of the Indian
Sea. 6*

C H A P.

CHAP. III.

*The Author sets out on an inland Excursion—
Visits Mussembourg, Constantia, and other
Dutch Settlements—Is prevented from
penetrating into the Country of the Hotten-
tots, by the Timidity of those who were to
assist him, and the prudential reasonings of the
Commander of the Expedition—Exactions
to which those must submit who visit the
Cape.* - - Page 15

CHAP. IV.

*Arrival at the Cape of two Hottentot Chiefs
with presents—Details which equally relate
to the independent Hottentots, and those who
live in a State of Vassalage on the Dutch
Territory—Their Persons, Customs, Lan-
guage, and internal Regulations—Philoso-
phical Disquisitions on various Languages—
Two remarkable Instances of Magnanimity.*

21

CHAP.

C H A P. V.

Excursion to the Isle of Magdeleine—Detail respecting the Natural History of the Sea-Wolf and Penguin—Modes of catching the former. - - Page 36

C H A P. VI.

Departure from the Cape—Heavy Gale of Wind, in which the Vessel sustained much Damage—Sight of a Comet—Anchorage in the North West Port of the Isle of France, and subsequent Departure from thence to the Isle of Bourbon—Reflections which suggested themselves to the Author on the superiour Prosperity of the latter Isle—Error in the Chart with Respect to the Distance betwixt the Isle of France and that of Rodrigue, ascertained by Bertoud's Time-piece. 50

C H A P. VII.

The supposed Existence of a Southern Continent—The Means to be pursued in the present Voyage to ascertain this Fact—The Barometer is not to be trusted in cold Climates

mates, and high Winds—Further Experiments on the Quantity of Salt contained, under different Latitudes, in Sea Water.

Page 56

C H A P. VIII.

Discovery of several Islands and a main Land—One of the Islands is fixed upon as a Rendezvous for the two Vessels, and is therefore named the Island of Re-union—A new Coast is also discovered.

71

C H A P. IX.

Landing at the Island of Re-union, and Possession taken of the discovered Countries—The Crews suffer very severely from the Rigour of the Climate—Reflections on the Prevalence of Storms, and particular Winds in this Part of the Globe.

77

C H A P. X.

The Vessels quit their Discoveries, and sail for Madagascar—Sudden Transition from severe Cold, to fine temperate Weather—Anchorage in the Bay of Antongil, where the Sick are refreshed—Description of the Island

7

of

of Madagascar—The Author, desirous to inform himself of the natural History of the Island, and the Manners and Customs of the Inhabitants, embarks in a Canoe, and lands near a small Village. Page 85

C H A P. XI.

The Author visits the Chief of the Village, from whom he finds a most cordial reception—He makes an Excursion to another Village, where he meets with two Incidents, which serve to show the selfish Disposition and Cunning of the Natives. 92

C H A P. XII.

Quarrel between the Governor of the French Colony, newly settled at Madagascar, and one of the Native Chiefs—The Laws of Hospitality are inviolably preserved by the Author's Host—A Village is burned, and several of the Natives killed by the Europeans. 99

C H A P. XIII.

Distinction between the Aborigines of the Island of Madagascar, and the adventitious Indian Settlers

Settlers—Characteristics and Dress of the former—Their Husbandry—Their Religious Worship—Cautions to Europeans, who fix their Abode on this Island. Page 106

C H A P. XIV.

The Palavers, or Conferences, the Natives of Madagascar hold, even on the most trivial Occasion—Their Possessions—Arms—Mode of internal Defence—Military Operations—their Cruelty in War, and irreconcilable Hatred of their Enemies. 117

C H A P. XV.

Mode of giving and receiving Presents at Madagascar—The Licences in which the young Females indulge, arise from a Motive of Avarice—Chastity of the married Women—Observations on the Language of the Inhabitants. 125

C H A P. XVI.

*The two Vessels, having refitted, separate—The larger one, in which the Author is, sails for the Cape of Good Hope—Anchor-
age*

C O N T E N T S.

XV

*age in Simon's Bay—Further Observations
on the natural History and Productions of
the Cape—Departure for Europe, and Ar-
rival in Brest Road.* - Page 137

C H A P. XVII.

*Considerations on the Diversity of the Climates,
situated under equal Latitudes, towards
the two Poles—The probable Causes of this
singular Difference—The Climates which
are the least uniform, with Respect to
Heat and Cold, are the most stormy—The
Author with a View to many useful Ob-
jects, determines to penetrate as far as
possible towards each Pole, and embarks
accordingly at Toulon.* - 143

C H A P. XVIII.

*Voyage from Brest to the Downs—Passage
thence to Calais—Journey, by the Canals
of Flanders, the Meuse, and Holland, to
Amsterdam—Comparison between Austrian
Flanders and Holland, with Reflections
on the latter Country, and the Character
of its Inhabitants.* - 150

C H A P.

CHAP. XIX.

The Author embarks in the Texel for Spitzberg—Passage through the German Ocean to the East of Norway—New Experiments on Sea-water—And Reflections on the Mode of living of the Norwegians and Inhabitants of Greenland.

Page 157

CHAP. XX.

The north Cape of the great Continent is passed, and Islands of Ice encountered—These large Bodies are the probable Cause of a great and sudden Change in the Weather, which now becomes remarkably serene—The curious Appearances the Ice exhibits; and the Manner of navigating through the little Channels it forms. 162

CHAP. XXI.

The Passage towards the North is completely blocked up by the Ice, and another one sought—Manner of Anchoring on an Island of Ice—Natural History of the Sea Unicorn and Sword-fish—The Vessel is completely

CONTENTS. xvii

pletely enclosed by the Ice, which renders the Navigation impracticable—By the Exertions of the Crew this Difficulty is obviated. 170

CHAP. XXII.

Description of the Varieties of Ice encountered on this Voyage—Reasons why the British Ships which prosecuted northern Discoveries in 1773, did not succeed in penetrating farther towards the Pole—The Author conjectures that a Voyage to the Pole itself is not impossible, and supports his Hypothesis by Reasonings. 177

CHAP. XXIII.

The Russians are of all others the least calculated to prosecute Discoveries towards the North Pole—Sea-Water is freed of its Salt by intense Cold—At particular Seasons, towards the North Pole, it assumes a blackish Hue—Observations made with the Barometer, by which it would appear that Ice in large Bodies forms an Atmosphere of its own—Description of the Island of Amsterdam. 184

CHAP. XXIV.

Description of the Island of Spitzberg—Huge Mountains of Ice are scattered along the Sea-Coasts, which are washed by excessive Torrents—The Vegetation is extremely rapid—The Quadrupeds of these Islands described, and the periodical Changes in the Colour of their Fur explained. Page 191

CHAP. XXV.

Description of the Sea and amphibious Birds of the Islands of Spitzberg—Account of the Establishments the Russians have made there, for the collecting of Furs—And critical Reflections on the Advantages which present themselves to that enterprising nation. - - - 199

CHAP. XXVI.

The Navigation amongst the Ice becomes so very difficult, that the Vessel is in Danger of being crushed in Pieces, and is extricated by almost incredible Exertions—By the Process of freezing, the Sea Water

CONTENTS.

xix

*Water is almost entirely freed of its Salt
—The Fact is established that an extensive
Range of Ice forms an Atmosphere pecu-
liar to itself.*

Page 208

CHAP. XXVII.

*Description of the Whale Fishery on the
West Coast, with an Account of the various
Instruments employed, and Suggestions for
their Improvement.*

215

CHAP. XXVIII.

*Methods of Whaling employed by the North
Americans, and Inhabitants of Davis's
Straits, in Seas unincumbered by Ice—
The different Processes used in separating
from the useless Parts of the Animal
the Blubber and Bone—Natural History
of the Whale.*

223

CHAP. XXIX.

*Conjectures respecting the Food of the Whale
—Continuation of its Natural History—
the Errors which have crept into the
Description of this Animal—and a few
philosophical Reflections which naturally
occurred*

a 2

XX CONTENTS.

occurred to the Author, from the Contem-
plation of so stupendous a Creature. Page 232

C H A P. XXX.

The Vessel, stationed in a small Creek, is nearly crushed in Pieces by large Bodies of Ice—the curious Motions and Evolutions of these Bodies—with incredible Labour a Bason is cut in the Ice; but is not so effectual as to prevent imminent Danger—the Author philosophizes, and recounts the various Perils he has run. 242

C H A P. XXXI.

After encountering a Variety of Difficulties, during which, by the indefatigable Exertions of the Crew, a new Bason is cut in the Ice, the Vessel is at length freed from her perilous Situation. 251

C H A P. XXXII.

Reflections on tropical Winds, and the Calms which almost constantly prevail near the Poles—The Voyage is pursued
6 *amongst*

amongst the Ice—Singular Difference betwixt the Sea Wolves of the North and South Seas—The Traffic the Hamburgers carry on to procure the Fat of these Animals. - - Page 258

C H A P. XXXIII.

Passage towards the Coast of America—The Land of Gallhamsques is passed, but is not seen, on Account of an impenetrable Fog—Reflections on the Formation of the huge Mountains of Ice met with on the American Coast. - 265

C H A P. XXXIV.

Description of the Coast of Gallhamsques—Importance of the Whale Fishery, and the Encouragement it receives from different Nations of Europe—The Practicability of penetrating to the North Pole itself further investigated. 273

C H A P. XXXV.

The Seas of Siberia and Spitzberg are not the best calculated for a Passage to the

the North Pole—The Compression of the Ice and every other Obstacle may be surmounted in such an undertaking—The Precautions in Point of Season, &c. which should be observed in a similar Expedition—The Vessel directs her Course for Europe, and passes by the Island of John Mayen, which is described. Page 282

CHAP. XXXVI.

The Regions of Ice are passed, and the Fact completely established, that the Congelation of Water forms a peculiar Atmosphere—Several new Species of the Whale are seen and described—Sensible Difference between the Northern and Southern Climates near the Poles—Passage into the German Ocean, and Arrival at Amsterdam. 289

CHAP. XXXVII.

Passage from Rotterdam, through the British Channel, to the Island of Guernsey, and from thence to the Island of Breha, in Lower Brittany—Arrival at Brest. 298

**TABLE of the DIFFERENT QUANTITIES of SALT
CONTAINED IN
SEA - WATER,
TAKEN AND EXAMINED IN VARIOUS CLIMATES,
FROM**

The 50° of Southern to the 82° of Northern Latitude;
Whence may easily be inferred the Weight of these different Specimens of Sea Water.

SOUTH LATITUDE.

In 49° 50', 100 lb. of Sea Water contained						4 pounds $\frac{1}{8}$ of Salt.
46	12	-	-	-	-	4 $\frac{1}{2}$
40	30	-	-	-	-	4
25	54	-	-	-	-	4
20	24	-	-	-	-	3 $\frac{1}{2}$
In View of Martin Vas's Island						3 $\frac{1}{4}$
1	16	-	-	-	-	3 $\frac{1}{2}$

NORTH LATITUDE.

4°	22'	-	-	-	-	3 $\frac{1}{2}$
10	14	-	-	-	-	3 $\frac{2}{3}$
25	-	-	-	-	-	3 $\frac{3}{4}$
39	-	-	-	-	-	4
45	-	-	-	-	-	4
59	having soundings in the German Ocean					3 $\frac{1}{2}$
64	-	-	-	-	-	4 $\frac{1}{2}$
74	-	-	-	-	-	4 $\frac{3}{4}$
81	in the Ice (*)					4

(*) The Ice, though composed of Sea Water, is discharged of its Salt in the process of freezing.

Of the Sea Water, that froze in the Air round the Hull of the Ship under Sail, the Thermometer being at 30 below Frost, 100 Pounds gave 1 Pound of Salt.

The same Ice preserved for eight Days, the Mercury mean while having been constantly at 10 and 20 below the Freezing Point, contained 0 $\frac{1}{4}$.

The same Ice, after three Weeks, the Thermometer during the last ten Days being from 6° to 11° below Frost, contained 0 Salt.

**A
VOYAGE
TOWARDS THE SOUTH POLE,**

IN THE YEARS 1773—74.

C H A P. I.

*Design of the Voyage—Departure from Brest
—Experiments made in different Latitudes on
Sea-water—The Line is crossed, and Martin
Vas's Isles seen at a distance.*

IT being the intention of government to promote discoveries in unexplored regions of the globe, orders were given for the equipment of a ship, called the Rolland, and a frigate, to be employed on an expedition to the South Seas. Besides the political advantages that might possibly result from this voyage, as it promised to exhibit views of nature undisclosed to the eye, and unperverted by the manners of civilized nations, I learned with peculiar satisfaction that it was meant I should have a command on the pre-

VOL. III.

B

sent

2 VOYAGE TO THE SOUTH POLE.

sent occasion, and accordingly embarked soon after, invested with the charge of whatever service on shore the circumstances of our discoveries might require. We found by our instructions we should touch at the Cape of Good Hope; and afterwards at the Isle of France to land some officers belonging to the garrison there, and that we were not to proceed southward before we had executed these previous orders.

We set sail from the harbour of Brest on the 26th of March, 1779, with a fair wind at E. N. E. the 3d of April, at six o'clock in the evening, we came in view of Salvage Island, situated north from the Canary Isles. It appeared from our observations of latitude and longitude, as well as from the bearing of Salvage and Tenerif Isles, that the last is laid down on the charts about four leagues more to the north west than it really is. We saw the island of Tenerif next day. And the ensuing night passed betwixt it and the Canary isles, and continuing the same course we kept in the middle of the channel between Cape de Verd Isles and the coast of Africa.

I had

I had been anxious to ascertain by comparison, whether sea water contains salt in greater quantity under the torrid than under the other zones; and my experiments on this subject, which I proceed to mention, serve to show, contrarily to what I expected, that sea water is impregnated with salt in less quantity within than without the tropics.

On the 12th, being in $10^{\circ}. 14''$. north latitude and $22^{\circ}. 49''$. west longitude from the meridian of Paris, a hundred pounds of sea-water, taken at the depth of ten fathoms, and weighed in water scales, gave three pounds $\frac{2}{3}$ of salt.

On the 16th, repeating the same experiments in latitude $4^{\circ}. 22''$. north, and longitude $18^{\circ}. 44''$. west, an equal quantity of water contained only three pounds of salt.

On the 22d of the same month, in latitude $1^{\circ}. 16''$. south, and longitude 21° . west, the same quantity of water gave a similar quantity of salt as on the 16th.

The wind, hitherto from the north east, gradually lessened as we approached the line, which we crossed in $20^{\circ}. 30''$. west longitude;

4 VOYAGE TO THE SOUTH POLE.

when shifting to the east, after intervals of calm, accompanied with a few drops of rain, it set in from the south east. It freshened as we gained a more southerly latitude, and the temperature of the air seemed in general more harsh and irregular than in parallel latitudes in the northern hemisphere; my experience on this voyage afforded full and circumstantial evidence in confirmation of this fact.

We discovered a considerable difference between the ship's reckoning and our observations, the latter placing us constantly more to the south south west than the former.

On the 1st of May, we saw numbers of white *Gouallettes*, and a species of sea fowl named Frigate, so called from their flight, which is thought to have some resemblance to the swift sailing of that species of vessel. They appeared again next day, when we saw likewise several sea dogs, and at six o'clock in the evening, the man at the mast-head, called out that he saw a small island; but as the night soon came on, we were unable to ascertain the truth of his report. On the return of day, the weather being

VOYAGE TO THE SOUTH POLE. 5

being hazy, we remained in the same state of suspense; several of the crew, however, affirmed that they had seen it so distinctly, as to have no doubt of its existence. We steered west south west, in order to ascertain the reality of our discovery; but the atmosphere becoming very obscure, we were obliged to desist and resume our proper course. It is not improbable, however, that the land, said to have been seen on this occasion, is one of Martin Vas's Isles; since although our reckoned longitude was only $25^{\circ}. 23''$. yet according to our observations it was $30^{\circ}. 30''$. a position not very wide of that mentioned by Mon. D'Apres who places them in 32° west longitude.

When in view of the above land, a hundred pounds of sea-water contained $3\frac{1}{2}$ pounds of salt; and six days after, being in latitude $25^{\circ}. 54''$, and longitude $21^{\circ}. 48''$, I found that the same quantity of water gave within a fraction of 4 pounds. In latitude 24° . the trade winds had considerably lessened, and as the wind shifted to N. W. we availed ourselves of the variation, and directed our course towards the east. In the latitude of

6 VOYAGE TO THE SOUTH POLE.

about 26° , we entered the region of variable winds, but as they blew from the west we kept E. S. E.

C H A P. II.

Sight of the Cape of Good Hope—Observations made with the Megameter more correct than those taken with the Sextant—Anchorage in Simon's Bay—Remarks on the Mode of preserving Vegetables for Sea Voyages, and Precautions to be observed in their use—Reflections on the Hottentots, and on the Correspondence established by Land between the Inhabitants of Guinea and those of the Indian Sea.

ON the 24th of May we imagined ourselves to be at no great distance from the Cape of Good Hope; our observed latitude was $34^{\circ}. 20''$. and longitude $13^{\circ}. 20''$. east; next day fresh observations placed us in longitude $14^{\circ}. 35''$. whilst the ship's reckoning carried us as far as $17^{\circ}. 23''$; but

we

we could have no doubt that the last calculation was erroneous, and that, therefore, we were by no means so far to the east. Next day, at sun rising, we saw the Table of the Cape, and I found from the bearing of the land, that our longitude, as observed by the megameter, erred only about two leagues, whilst the error of the ship's reckoning was no less than fifty one leagues east. Our observations with the megameter were much more accurate than those taken with the sextant. The first instrument, however, takes in only small distances, and it is almost impossible to use it in a high sea. It is much to be wished that a more convenient method of employing it could be invented; in that case it would be greatly superior to every instrument for nautical observation I am acquainted with. We doubled the Cape on the 27th, and in the evening came to anchor in False bay, in forty-five fathoms water, with a bottom of sand and shells. Next day we entered Simon's bay on a tack, and moored in thirteen fathoms, with a bottom of fine sand.

As ships are exposed in the bay of the

8 VOYAGE TO THE SOUTH POLE.

Cape to considerable danger from the north and north west winds, they withdraw at the commencement of this season to a creek in Simon's bay, on the west side of False bay. Here the lofty mountains of the Cape shelter them from the high winds which blow in the western quarter, varying from the north all the way to the south point. On the other hand, this bay being open to the south east wind, which sometimes in summer sets in with great force, shipping give it a preference, in its turn, to the bay at the Cape. This last is named with more propriety Table bay, as it is situated at the foot of that mountain ten leagues distant from the southern extremity of the Cape.

A considerable part of the ship's company having been attacked with putrid and worm fevers, we took the first opportunity of landing them. We laid in some months' provisions to replace such as had been spoiled or consumed; for a great proportion of our vegetables were now found in a state of putrefaction, a circumstance probably owing to the dampness of the ship, which was new and had never before been out of the harbour.

To

To prevent the scurvy, a disease so incident to seafaring people in a long voyage, the commander had retrenched a part of the men's salt provisions, substituting vegetables in their place. This diet presented at first view great advantages; but in order to render it really beneficial to seamen, too much caution cannot be observed by the contractor, that the vegetables, destined for a long voyage, should not be old, and that they should be dried in the oven, only so far as will destroy the eggs as well as the insects themselves, and prevent the vegetables from heating or fermenting in hot and moist climates. Care should likewise be taken by the commanding officer, that the change of diet be gradual, and that the allowance of the men put upon this regimen be augmented, as a vegetable diet does not yield an equal degree of nourishment with animal food; and indeed I think it not improbable, that the fevers which attacked the crew on our passage to the Cape, might have been occasioned by their abrupt transition from the rich juices of an animal to the meagre aliment of vegetable food.

The

10 VOYAGE TO THE SOUTH POLE.

The banks of False bay present naked and sandy hills with little or no soil, except what is found in cavities formed by the impetuous descent of the torrents. But Dutch industry and perseverance have rendered the little settlement of Simon's bay equal to the exigencies of such vessels as put into it for provisions. As there is a frequent and easy communication between this place and the city of the Cape, situated at the distance of seven leagues, I was able to gratify my curiosity by an excursion to a town to which the visits of all European nations, trading to India, have given consequence and celebrity.

At the Cape I expected likewise to obtain proper information respecting the route and best mode of travelling to the country of the Savage, or to speak more properly, the independent tribes of Hottentots, who, constantly adverse to a foreign yoke, live to this day in the quiet and innocent enjoyments of pastoral life. To inquire into the manners of men, in a simple and unrefined state, was an object always uppermost in my thoughts, and had entered as a principle into the plan of my travels round the world; and

and though I should not have it in my power to acquire a thorough knowledge of the manners and customs of the Hottentots, yet I would not suffer the present opportunity to escape without knowing something of the real character of those tribes. Besides, as the Hottentots maintain an intercourse with the negroes who make extensive peregrinations into the inland country, I hoped to derive from them curious information respecting the interior parts of Africa, which I am now of opinion might be traversed to Tunis with much less difficulty than has been commonly imagined. Slaves have been purchased by our traders, on the coast of Guinea, who say they are from a country bordering on a sea towards the rising of the sun; whence we may infer, that a communication exists by land between the nations of Guinea and the tribes which live on the confines of the Indian ocean. In this idea I was afterwards confirmed by a conversation I had with some negroes, purchased by our ships on the Mosambic coast, who, though speaking a different language, can make themselves understood without the aid of an interpreter,

12 VOYAGE TO THE SOUTH POLE.

by negroes from the coast of Congo and Angola. The nations of the Mosambic coast have been conquered at different times by the Arabs, while other Arabian tribes, named Malays, arrive once a year in arms for the purpose of traffic, as well as to collect a tribute from Dahomer, chief of that part of the coast of Judda, where we have established a French factory. I had occasion to converse likewise with some Soufous negroes, who had been bought between cape Formosa and cape Verd, who spoke and wrote the Arabic, and were followers of Mahomet. It is well known that the natives of Senegal carry on trade with, and pay a kind of tribute to the Arabs; and it is equally certain that the natives on the coast of Guinea cross the continent from their own country to Tunis and Tripoli. The superintendant of our factory at Judda informed me, that the Arabs, who trade with the chief of that district, are in part Cherifs of the family of Mahomet, wear a green turban, and their articles of merchandize, consisting of different stuffs made of silk and cotton, are exactly similar to what we meet with among
the

the Mahometans who border on the Mediterranean. He says, that when they salute, they lay their hands not upon their breasts like the Mahometans of Europe, but upon their forehead, like those of India. Circumcision is a rite prevalent over the whole of Africa, from the Mosambic to the coast of Barbary. It appears therefore from this detail, that there is a much greater intercourse between the nations residing in the interior parts of Africa than we have been apt to imagine; that they indeed maintain a very general correspondence and traffic; and that the Arabian tribes, trading with the coast of Africa or the Indian ocean, must have some connection with those Arabs who carry on a traffic along the coast of the Mediterranean sea. From the manner of saluting in use among the Arabs who come to Judda, I infer likewise that there is a good deal of intercourse between them and the Arabs on the Indian sea; and certain customs I remarked among the negroes from the coast of Angola, induced me to come to a similar conclusion with respect to them. A

game

14 VOYAGE TO THE SOUTH POLE.

game* of calculation in common to the nations of Africa, as well as the whole continent of Asia, gives much countenance to my opinion on the subject. I learned from the same person, I mean our superintendant at Judda, that the Hyppopotamus is sometimes seen on the marshy borders of the river; that he makes a noise somewhat resembling the neighing of a horse, but without the smallest degree of likeness to a horse; that he is rather like the ox, though with the short hair of the buffaloe. He mentioned likewise the jackall, which in that country has a beautiful skin, spotted like the leopard, and is nearly of the size of the tiger, but much his inferior in strength, claws, and natural ferocity.

* This game is played with little balls arranged in two lines on different points, and consists in removing and replacing them according to certain rules, which I do not comprehend. I have met with it among the Chinese, Malays, Indians, Turks, Malgaches, and Negroes.

C H A P.

C H A P. III.

The Author sets out on an inland Excursion—Visits Mussembourg, Constantia, and other Dutch Settlements—Is prevented from penetrating into the Country of the Hottentots, by the Timidity of those who were to assist him, and the prudential reasoning of the Commander of the Expedition—Exactions to which those must submit who visit the Cape.

I Set out on my excursion the 3d of June, and after following the sea shore for three leagues, arrived at an house named Mussembourg, which belongs to the Dutch, and serves as a place of rendezvous for a part of the Company's cattle. Some hundred yards further on, I came in view of a lake, stretching to the north west; it washes the borders of a plain determined by a sweep of the mountains, which rise in Table mountain towards the north. Crossing the lake, and continuing my journey over the plain, I discovered at half a league's distance the mansion and district of Constantia, so famous

16 VOYAGE TO THE SOUTH POLE.

mous for its wine. Beyond it are seen habitations on a soil embellished with a few plantations; but the ground in general appears to be dry and sandy, and little susceptible of improvement. The country is in general bleak, and far from being agreeable, though here and there the traveller meets with a bush of sweet broom, and the flowery lilac. A little higher, however, the soil becomes stony and of a deeper mould, with several clumps of the silver tree, so named from the whitish and velvet surface of its leaves. The silver tree grows straight, and, as the contour of the branches forms a pretty regular cone, presents an agreeable appearance. I met with no other natural wood in this country, which would come under the description of timber. I was told, however, that in such low grounds as are sheltered from the harsh and inclement winds, there are some very large trees, and in the interior parts of the country several considerable forests.

The country, as I proceeded, being interspersed with vineyards and corn fields, began to assume an air of greater fertility.

I now

I now came in view of a vast plain, adorned with handsome houses, and along the road were many beautiful country seats, which in some places were shaded with a double row of fine trees. The gardens in general have a pleasant effect; but such as are contiguous to the residence of the governor, with a wood in a quincuncial form, make one believe one's self in the vicinity of a considerable European town. The acorns, from which sprung those charming trees, were imported from Holland; but one sees with a kind of regret, that the great distance of the colony from the African forests, ruins the best of their own timber, which is cut down and employed as fire-wood by the Company's servants.

I came in view of Table bay, and the Isle of Robben; and as soon as I passed Table mountain, observed the Cape town, at which, after a journey of seven leagues, I arrived in the evening. The town has no advantage from walls, but is defended by a castle, which commands the sea and the adjacent country. Towards the east and west it has two batteries, which overlook

18 VOYAGE TO THE SOUTH POLE.

the road, with a work particularly intended to cover the shore; and this fortification in the quarter of the town rests on the side of the mountain.

The population of the Cape is very considerable; the fortunes of individuals, though not overgrown, are above mediocrity; and the people in general are well supplied with all the comforts of life. Here the traveller meets with agreeable manners, good sense, and a great deal of frugal industry; the complexion of the inhabitants, particularly the Creoles, is fair; the town is handsome, and the climate happy. Such portion of the soil as has fallen to the share of the Company, is fertile and well cultivated. The Dutch have several villages at a distance in the country, the most considerable of which I am told is Stellembose; and the most remote settlers, directly up the country, are about seventy leagues from the Cape. Such as reside on the coast, whether of the Atlantic or Indian ocean, have extended their possessions to a much greater distance from the capital; in so much, that were the houses set down within

a mo-

a moderate distance, the extent of Dutch territory would form a very strong colony. As the planter, however, has been permitted to appropriate to himself the best soil and pasture wherever he could find it, population in the country is thin, and the houses far removed from each other.

From the fertility of the soil, and numerous herds of cattle, the Dutch at the Cape, as well as the planters in the remote parts of the settlement, live at a very moderate expence; an advantage, however, but little felt by Europeans, government having arrogated to itself a monopoly, not only of supplying ships with stores, but even daily subsistence to strangers. Provisions are sold at a very high price; and hence the profits of purveyance constitute a considerable part of the colonial revenue. Still, however, it is a matter of agreeable surprise to find at the extreme point of the African continent, plenty of every thing necessary or convenient for a long voyage. This colony is in condition to export corn to Batavia, as well as to the mother country.

I abandoned, though with great reluc-

tance, my intended travels to the uncivilized Hottentots : the persons to whom I applied for such previous information as was necessary to my entering on the expedition seemed to look through a magnifier at every obstacle in my way ; the ordinary method of considering undertakings that deviate from the beaten track of common experience. Besides, the captain of the ship having followed me to the Cape, urged many reasons to dissuade me from the execution of my plan—reasons, nevertheless, which went upon the supposition of such a strange and improbable coincidence of circumstances as might militate against any human project whatever. I chose, therefore, to sacrifice to my duty all that interesting knowledge which I have no doubt might have been obtained on this occasion, without the smallest inconvenience to the main object of our voyage. From this moment every flattering prospect with which I had set out on this service in a great measure vanished ; and I saw with sincere concern how little I could count on those intellectual attainments I hoped to

have derived from my having a share in the expedition. The mere sailor, attached by the habits of his profession to shipboard, satisfies himself with a glance of those objects, which none but a person on shore can investigate and ascertain in their true meaning and importance.

C H A P. IV.

Arrival at the Cape of two Hottentot Chiefs with presents—Details which equally relate to the independent Hottentots, and those who live in a state of Vassalage on the Dutch Territory—Their Persons, Customs, Language, and internal Regulations—Philosophical Disquisitions on various Languages—Two remarkable Instances of Magnanimity.

SOME days after my arrival, I saw at the Cape two old men, persons of eminence amongst those of the Hottentot nation, who live on the territory and under the jurisdiction of the colony. They had brought with them some cows as a present to the

Dutch, and received, in return, mock pearls, garnets, and other little articles of traffick. They declined lodging in the town, but chose, according to the manners of their country, to pitch tents and dwell in its vicinity. The tribes in the interior country, whom the Dutch name Caffres or Boschismans, have a rooted abhorrence to the planters, and look down, with great contempt, on such of their own people, as have submitted to the yoke of the company. These independent tribes make frequent irruptions into the heart of the colony, and after committing depredations on the persons and property of both, withdraw, with their booty, to the woods and fortresses of their distant mountains.

The following particulars concerning this race of men, are equally applicable to the free and enslaved Hottentots; and are facts which I believe, having either seen them with my own eyes, or obtained them from the report of reputable creoles who reside in the interior parts of the country.

The Hottentot is of a middle stature,
well

well proportioned, active, and possesses great agility in running; the upper part of his face is broad with high cheek bones, but the lower part is slender and draws to a point at the chin; he has the nose and lips of the negroe; a large prominent eye with a considerable degree of vivacity; his hair is less crisped than the hair of the negroe, and approaches nearer to that of the natives of Madagascar; he is at much pains to anoint it with grease, and as he wears a bonnet which covers the whole forehead, it gradually looses its frizzled texture and becomes intirely straight. It is far from being thick—it rather has the appearance of having been pulled out by small tufts. His complexion is naturally brown, but, from its being constantly exposed to the sun, and anointed with the fat of his cattle, gradually deepens into a dusky black.

These facts give countenance to the observations I made on this subject in the Desarts of Arabia; I mean that heat of climate, co-operating with the influence of a dry parched soil, may account for the complexion of the negroe, as well as the

crisped and woolly nature of his hair. The Hottentots, whom it would be very improper to call negroes, are, however, surrounded by them on all sides, and, I have no doubt, are of the same extraction. The high antiquity of their first emigration, and their long residence on a more humid soil, and under a milder and more temperate climate than their own, have produced in my opinion, the circumstances which distinguish their present appearance from that of their negroe ancestry. The Hottentot wraps himself in a large skin and deposits his privates in a small bag adorned with a piece of strong leather of an oval form. This case or codpiece is likewise embellished with small brass nails, and a border of little rings of the same metal, which, owing to the motion of his body, produce a tinkling sound like that of the sheep-bell. They have the art of extracting the metal from their mountains, as well as of manufacturing it for different uses. The breast and neck are adorned with mock pearls, garnets, or small pieces of bone. Their chaplets and necklaces are of the

same

same materials, and you frequently meet them with the intestines of their cattle tied round their ancles. Strings of garnets, hanging down on the hinder part of the neck, are attached to the hair on the crown of the head.

The heads of families receive much honour and consideration from the community, while the youth are not even allowed access to the national council. Previously to their being admitted to this privilege, they must be declared men, and have entered into a state of wedlock—honours which are conferred at the same time, and by the same ceremony. When a young man has attained the age and other qualities which fit him for accompanying his countrymen to the war, to the chase of wild animals, and, in short, for discharging the duties of a husband and parent, he makes choice of a wife, and convokes an assembly of his tribe. The bride and bridegroom are conducted thither by their respective relations, and receive an harangue on the reciprocal duties of the married state, after which a Hottentot, appointed to the office, binds

binds a piece of intestine about the arms of the bridegroom, and urines across his shoulders; when the candidate for public honours being declared invested with all the rights and prerogatives of a married man, may henceforth assist in council, as well as in the pursuits of the fields. The women are chaste in their morals, and live in a state of great subordination to their husbands. A man may have a plurality of wives, but marriage is never permitted between brothers and sisters. I was assured, by persons of whose information and veracity I could not doubt, that the apron of the female Hottentot is a mere fiction of travellers. From every thing I could learn respecting the manners of the Hottentots, from the custom of urining on the shoulders in the nuptial ceremony, from their anxiety to adorn the parts of sex in the male, as well as from the very abject condition of the woman, we seem warranted to infer that they have a peculiar veneration for age, sex, and all the qualities of manhood—qualities of essential moment in the defence and perpetuity of the species.

The

The Hottentots, denominated Caffres, despising agriculture and tillage, give their whole time to their herds and flocks. Their oxen serve for riding as well as for beasts of burthen. They live not in tents like the Arabs, but in huts made of bull-rushes, or the skins of animals; and as the country abounds in pasturage, they are less addicted to a wandering and desultory manner of life than either the Arabs or the Tartars. Though prone to indolence, they are swift of foot, dexterous and active in their persons. In the chase of the lion and tiger, as well as in their wars with the Dutch and Dutch Hottentots, (the last of whom they despise,) they give eminent proofs of courage and intrepidity. Their arms consist of the bow and arrow, the dagger, a species of javelin, and a short massy club pointed at each extremity with brass, which they have the art of throwing at the enemy with particular address. I have seen a similar weapon among the Egyptians, and the inhabitants of Palestine, and it is by no means improbable that the use of the club may have gradually migrated hither

5

from

from Egypt or Abyffinia. They take much pleasure in dancing, and the found of musical instruments; and some of them, in their leifure hours, touch a fpecies of guitar. Their firft appearance is not prepoſſeſſing, but after a little acquaintance one diſcovers a countenance, that from its variety, and the vivacity of the eyes, ſeems to indicate ſomething lively and intelligent. I have ſeen them play a game of combination with an addreſs which would import any thing rather than that groſs ſtupidity vulgarly attributed to the character of the Hottentot. If they, nearly in the ſimpleſt ſtate of human life, find amuſement in what gives exerciſe to the powers of the underſtanding, we cannot, without being chargeable with ignorance or injuſtice, impute to them a turn of mind peculiarly ſtupid and inſenſible. Though I do not think their natural temper ſad or melancholy, it ſeems to be of a ſerious caſt.

The language of the Hottentots is the moſt ſingular I have ever met with. Beſides innumerable gutturals, it contains many ſounds formed by preſſing the tongue

in

in a bent state against the palate. These sounds have some resemblance to that uttered by a glutton or drunkard in low life, when he meets with a dish or bottle of wine particularly suited to his liking. It would perhaps be difficult to render what I mean better understood than by the word *clop* or *clep*; a sound which seems to precede the main expression, and is repeated once or twice, according as the object to which it is applied is more or less important. They say, for example, when one Hottentot addresses another by his name, *clop ouaguays*. I thought, however, I could perceive that this initial flap of the tongue was only introductory to a primitive or original word. By a primitive word, I mean a word which is neither derived from, nor compounded of any other, as *eau*, *terre*, *bois*, *oiseau*; whereas *habitation*, *boisson*, *action*, are derived from *habiter*, *boire*, *agir*. This uncouth sound, I observed, preceded likewise their numerals, 1, 2, 3, 4, &c. The savages of the province of Tegas, in America, have a mode of expression formed by a snap of the fingers, in the way in which
we

30 VOYAGE TO THE SOUTH POLE.

we call upon a dog. They have other sounds formed by pressing the tongue against the palate, and analagous to that made by a woman when she collects her poultry ; but even this bears little resemblance to that of the Hottentot. The natives of the Philippine isles employ a certain pressure of the tongue to give sounds expressive of a negative. In my travels round the world I had occasion to make some reflections on this subject ; at present I shall only mention such eastern languages as I consider original or underived : of this description, in my opinion, are those of the Tartars, Arabs, Indians, and Chinese ; in these there is one remarkable difference, I mean their respective facility or difficulty of enunciation ; and it is in some measure from the very smooth inflexions of voice in one, and the very guttural articulations of another, that I infer their originality. My ear could distinguish a considerable analogy between the languages of the two peninsulas of India and those of the numberless islands which separate the south from the Indian sea ; in so much, that I find more disparity between
the

the French and English, though every one knows they are both derived from the German and Latin, than between any two of those languages. A similarity is likewise observed between the jargon of Otaheite and that of New Zeland. But the extension of population and intercourse from the Chinese Archipelago to the islands of Otaheite and New Zeland, (supposing this to have been the process,) must have been effected by many intermediate steps, and would have required a much longer period of time than was necessary to unite in the same manner the most remote parts of the European continent, even including the coasts of Greenland and North America. For this reason I am inclined to think that the islands of the south sea were peopled entirely from the peninsula beyond the Ganges, and probably not very long since. From the high antiquity of its population, we may suppose that many revolutions, sometimes in one direction, and sometimes in another, must have occurred, by which men being often reduced from considerable civilization almost to a state of barbarism, the languages of
the

the different nations would be greatly depraved and confounded, before they imparted population to the islands of the south sea.

Here the reader will give me leave to relate two instances of magnanimity, to the first of which I should have found it difficult to give credit, had it not happened at this place the evening before my arrival ; and if, besides the publick notoriety of the fact, I had not been an eye witness of those vehement emotions of sympathy, blended with admiration, which it had justly excited in the mind of every individual at the Cape.

A violent gale of wind setting in from the north north west, the barometer which had stood at 28° and a fraction, during the preceding fine weather, suddenly chopped to 27° , and three Dutch vessels in the road dragged their anchors. One loaded with grain for Holland, was forced upon the rocks, and bulged ; and while the greater part of the crew fell an immediate sacrifice to the waves, the remainder were seen from the shore struggling for their lives by clinging to different pieces of the wreck. The
sea

sea ran dreadfully high, and broke over the sailors with such amazing fury, that no boat whatever would venture off to their assistance. Meanwhile a planter, considerably advanced in life, and long a member of the colony, had come from his farm on horseback to be a spectator of the shipwreck. His heart was melted at the sight of the unhappy seamen; but knowing the bold and enterprising spirit of his horse, and his particular excellence as a swimmer, he instantly determined to make a desperate effort for their deliverance. He alighted, and blew a little brandy into his horse's nostrils, when again seating himself firm in the saddle, he instantly rushed into the midst of the breakers. At first both disappeared; but it was not long before they floated on the surface, and swam to the wreck; when taking with him two men, each of whom held by one of his boots, he brought them safe on shore. This perilous experiment he repeated no seldomer than seven times, and saved fourteen lives to the publick; but on his return the eighth time,

his horse being much fatigued, and meeting a most formidable wave, he lost his balance, and was overwhelmed in a moment. The horse swam safe to land, but his gallant rider, alas! was no more. I am doubtful if in the history of mankind we have a more brilliant example of heroism exerted in the cause of humanity.

The second instance of extraordinary fortitude I am to mention, is not equal to the first; still, however, it may be coupled with it in our narrative, since both have a tendency to show how naturally the mind is disposed to imbibe great and intrepid sentiments, when removed from the pernicious influence of luxury, and placed in the ease and freedom of rural life. There a man acquires the habits of labour and industry, whether it be to maintain himself and family in a decent mediocrity of fortune; or to acquire it by the conquest of those difficulties which a rude and uncultivated soil opposes to his success. It was in this view I observed that our brave cavalier, though an European by birth, had been long a member of the colony—But I return to my story.

A creole,

A creole, who resided inland at a considerable distance from the Cape, was wounded in the hand, and a gangrene had ensued, from negligence and inattention. At length he became convinced that nothing but immediate amputation could save his life: but reflecting he was at too great a distance from town to expect the aid of a surgeon, he determined to perform the operation himself. It was a process neither of much time nor expence to the creole; for after preparing such herbs as he meant to apply as a remedy to the stump, he cut off his hand with one stroke of a hatchet, and was indebted to no other assistance than that of a negro, who held his arm steady during the operation; and the simple precepts of nature soon effected his cure. I saw afterwards the patient in good health at Simon's bay; he was attended by his slaves, and a number of waggons, containing butter and other articles, the produce of his farm.

C H A P. V.

Excursion to the Isle of Magdeleine—Detail respecting the Natural History of the Sea-Wolf and Penguin.—Modes of catching the former.

AFTER informing myself in the best manner I could, concerning the town and harbour at the Cape, I returned to my ship in Simon's bay. In an interval of public duty I made an excursion to the Isle of Magdeleine, situated at the bottom of False bay, about three leagues from the ship. I knew it was a great resort of penguins and sea-wolves, numbers of which I had seen, in my way to fish off Romanclip, a rock which forms two passes at the mouth of Simon's bay. I esteemed it neither a disagreeable nor unprofitable pastime to consider those amphibious animals alive, the last of which appears to form the intermediate link between the fish and quadruped; as the first seems to connect, though in a more imperfect manner, the feathered race with the amphibious quadruped.

As the waves break with considerable violence on the confines of Magdalcine isle, I was careful to make choice of a calm day; and on my way thither I killed some *Moutons de Cape* and *manches de velours*, or velvet sleeves. On our approaching the land, I happened to take shot at a *manche de velour*, which alarmed a herd of sea-wolves as they lay basking in the sun, who instantly got up to their feat, and raised such cries as in number and variety I could only compare to the bleating of a flock of sheep, when the old and young make mutual responses to each other. The age and size of the animal might be distinguished by the degree of tone and energy of his voice. Our landing was somewhat abrupt, the noise ceased, and numbers of them plunged into the sea; but as they hovered near to the rocks a considerable time, I had an opportunity to hear distinctly the hoarse cries of some of the largest, which have a great resemblance to that of a young calf; but in this situation the young ones were entirely mute. After listening with much attention, I conceived that their cries were

descriptive of anxiety of state of mind, or of a gentle transition from one species of emotion to another, but which did not indicate a sentiment of fear. We were provided with small bludgeons, with which we stunned them by striking them on the mouth. We killed fourteen, and took four young ones alive. This timorous animal, impelled by the impulse of nature, made constantly towards the water by the shortest way, even should it lie between our legs, but never attempted to bite except when irritated by an interception of his flight. Had they been capable of maintaining their ground with the obstinacy of some animals, we might have found it difficult to make good a retreat; for they are remarkably strong, and were in such numbers as almost to cover the soil. This herd could not consist of fewer than three thousand. The largest were about four feet long by two and a half round; but the average size was two and a half or three feet in length, and one and a half round the breast. The sea-wolf appears to be extremely dull in the sense of hearing; for as they swam along the shore

at

at the short distance of three paces, I called to one of the party to observe their movements, but the sound of my voice did not molest them in the least. If, however, I made the slightest motion or gesture, they instantly dived and fled out to sea. Hence it should seem, that the eye in this animal is a much more delicate organ of sensation than the ear. The eye is not destitute of beauty, though it is frequently heavy and clouded.

With respect to the object of that instinct in their nature which seems constantly to urge them to land, I confess myself at a loss; but I observed, that as soon as we had withdrawn to the smallest distance from the shore, they began as before to climb the rocks, and to scramble towards a dry situation; an impulse which they obeyed with so little discretion, that we took some of them by cutting off their retreat to the water. On a dry and level spot of ground their motion is too slow to enable them to elude a pursuit; but if they happen to reach a smooth rock inclining towards the sea, they escape with great facility.

Some we took alive by blindfolding them

with a coarse sack, which served to defend us against their teeth; others we seized by the hinder legs, dragging them backwards on their bellies; for as they are very large and corpulent, it is with the utmost difficulty they can turn round to avenge themselves on an enemy. The same propensity, whatever it may mean, which carries them with eagerness to the shore, determines them to keep hovering near the rocks after they have got into the water. In this situation they amused us with many curious evolutions; sometimes they vault high above the surface, or hold themselves upright, with mouth, head, and neck raised above the water; sometimes they take a rotatory motion like a wheel; and sometimes they spring about a foot high and dive immediately, extending the fore feet along the belly, and stretching out the hinder ones in the manner of a fan or fish's tail.

I imagined at first that they were impelled to land, as well as to these movements, from the necessity of respiring; but, having observed them, on some occasions, remain a long time under water, I abandoned

this

this hypothesis. I am, persuaded, however, that water is an element less agreeable to the sea-wolf than land; an idea which, was suggested by an extreme desire they discover of indulging in a sort of sensual sleep or stupor. I was afterwards much confirmed in this opinion by an attentive observation of some which I kept alive, as I shall mention soon. Upon this supposition, however, what an apparent contradiction in the œconomy of nature, as it relates to this animal! a being, which, with a strong predilection for land, is forced by hunger to proceed far out to sea, and find his food at the bottom of the ocean.

When in the sun, the sea-wolf either sits upright or lies on his belly, stretching out his snout between his legs like a dog; if he would get into motion, he presses himself forward by protruding his fore and hinder parts alternately in the manner of a caterpillar. He then raises his head and nose like a pointer when he smells his game; and as he proceeds, has some resemblance to a terrier which rises and walks on his hinder legs. This effort, I should suppose, is
 painful

42 VOYAGE TO THE SOUTH POLE.

painful to the animal; it seems, however, necessarily to result, partly from the shortness of his legs, which are scarcely visible above the feet, and partly from the extreme corpulency and repletion of his body. The hair of the cub is of a dusky black, the snout is not so conical as it is usually represented, nor is the higher part of the nose equally depressed; the teeth are small, the mustachoes of a considerable length, and the expression of the face mild and inoffensive. The ears are narrow, close, and short, being only one inch and a half in length, a circumstance which gives him much the appearance of a cropped dog. His neck is thick, full, and so even with his head, that the hand glides smoothly over it; and hence it is very difficult to fasten the fingers on this part of the animal. His breast is large, but gradually diminishes towards the opposite extremity, which terminates in a very small tail of only two inches in length, and one eighth of an inch in diameter.

He has a sort of web foot formed of a coarse carilaginous substance, resembling the fins of the sea-calf. The exterior part
of

of this membrane contains five toes, which are never completely extended; the innermost is the most distinctly marked, the next two are less so, and the two exterior ones are scarcely perceptible. The nails appear like scales above the membrane which contains the toes, but do not extend to its extremity; they lie under the hair, and are so very little observed that they hardly deserve to be mentioned.

The hinder feet have also five toes; the three middle ones have their points and nails like those of a dog, very distinguishable; the remaining two are neither so large, nor are the joints equally prominent. On these the nail is extremely small, with the appearance of having been worn thin: the five nails are placed in the middle of the foot, which under the three interior toes consists of a slender bony cartilage; the other two being of nearly the same thickness in their whole length, are larger in their extremities than the three middle ones. The toes of the hinder feet are all connected by a membrane like that of a goose. There seems to be something whimsical in the position of the
nails,

nails, as they can be of no manner of use to the animal but to scratch, nor can they even render him this service without bending the foot in a painful posture.

I kept two of these animals alive for the space of eight days; at first I immersed them in a tub of sea water, six inches deep, and five feet long; but as they seemed extremely restless, and made frequent attempts to escape from their confinement, I drew off the water. After repeating the experiment twice, and finding them still unhappy and impatient, I at last allowed them to remain dry. When they found themselves disincumbered of the water, they began to shake their ears, and scratch and clean themselves like a dog. They kept close to one another, and sometimes sneezed like the above animal,

In fine weather I permitted them to amuse themselves in their own way. They never discovered an inclination to escape, but in view of the sea; on all other occasions they either stretched out their limbs and basked in the sun, or kept tumbling about, rubbing

rubbing their snout against the ground, or shaking and scratching themselves with their teeth and nails. They seemed to receive pleasure from being scratched by the seamen, with whom they contracted a degree of familiarity, in so much, that they used to crawl round them, smelling the lower part of their trowsers. They discovered a preference for clothes of a blue colour, which I am therefore inclined to believe is the colour of their natural food. They showed a constant propensity to ascend, and got easily on the quarter deck, probably in order to have the benefit of the sun in a high situation. Their mutual scratchings and caresses indicate a fondness for each other; they were no sooner separated than they joined company again with all possible dispatch; and we had only to carry off one to be instantly followed by the other, an experiment which afforded daily diversion to the sailors.

After living some time in this state of unnatural confinement, their eyes began to glisten, probably from a heat of blood, as they refused all manner of food: I offered
them

them fish and bread moistened with water, which they smelled to, but would not eat. I endeavoured to make them swallow flour mixed with water a little brackish, with no better success, for it did not remain a moment on their stomach. On the seventh day one of them was seized with a violent palpitation and sobbing, like the hiccups; he foamed at the mouth, discharging a greenish substance, and gnawed the sides of his tub; symptoms which seemed to indicate approaching madness, and he was immediately thrown overboard. Next day I let his companion loose in a piece of meadow ground, observing from my concealment whether he fed upon grass; but after watching a long time, finding he would not eat, I drove him likewise into the sea. He kept swimming, however, close to the boat, probably mistaking it for a rock, and I had some difficulty to drive him out to sea. At first he was weak, and swam with little spirit, but in a little time he dived, and after remaining about a minute under water, returned to the surface much more alert and vigorous. He had probably re-

freshed

freshed himself at the bottom with his natural food. He now took a final leave, and swam towards some rocks at a considerable distance.

The Isle of Magdaleine is likewise frequented by a species of penguins named *Manchots*; the higher grounds were almost covered with their nests, containing innumerable eggs and young birds. One of the nests presented an affectionate mother, who chose to forfeit her liberty rather than abandon her young. A nest contained generally two eggs or two chicks, seldom three, and never a single one. The young ones are laid head and tail, in the manner of pigeons, and one of them appears about a fourth larger than the other, whence I supposed them, male and female. Their down is remarkably long, with the thick curled appearance of wool. We caught no fewer than forty old ones: they walk slow, are perpetually disposed to crouch down upon the rocks, and therefore easily taken; the wings are long, and furnished with small short feathers like hair; their pinions serve them occasionally instead of fore feet, and then

then they can get on much faster; but they are seen for the greatest part perched on their legs with the head erect, and the wings drooping; an attitude which gives the animal a great appearance of stupidity. His plumage is of a dark grey, with a slight shade of blue; the belly is white, but upwards are two black oblong bands, one at the neck and the other at the stomach: the head is black, and presents a dull sleepy eye. They are not larger than the common duck, but the bill is shorter, smaller, more pointed than it is in that animal, and is used in his defence with great dexterity and effect. They dive and swim with much elegance; and I have seen them turn and pursue their prey with surprising alacrity. On land they are peculiarly awkward and embarrassed.

I kept two of these animals alive for thirteen days; when I found them, they were unfledged and very young. I used to feed them on moistened bread, and their digestion seemed good, but having placed them in water, one died soon after, and the other survived him only three days. They
had

had none of the gentle and inoffensive character of the sea-wolf; for as soon as we approached their cage they became hostile, and ready to attack us with violence.

The natural historian, I presume, will not find the above detail too minute, since it serves to confirm the knowledge already acquired of the character and structure of these animals; and this consideration will, I hope induce the reader who may be less interested in this particular science to excuse the length of the detail.

C H A P. VI.

Departure from the Cape—Heavy Gale of Wind, in which the Vessel sustained much Damage—Sight of a Comet—Anchorage in the North West Port of the Isle of France, and subsequent Departure from thence to the Isle of Bourbon—Reflections which suggested themselves to the Authour on the superiour Prosperity of the latter Isle—Error in the Chart with Respect to the Distance betwixt the Isle of France and that of Rodrigue, ascertained by Bertoud's Time-piece.

WE now prepared for our departure. The frigate had sailed the 27th of June, having orders to proceed to Madagascar, and, therefore, reimbarking fifteen men who were still indisposed with the scurvy, we got under weigh the 11th of July. The breeze being from the north $\frac{1}{4}$ north west, we went right before the wind. At four o'clock, however, P. M. it freshened, and blew with such violence, that we were obliged to take in the top gallant sails. The weather

weather became worse, inſomuch, that by half paſt ſeven it had aſſumed all the appearance of a ſtorm ; the darkneſs which overſpread the heavens, rendered viſible by ſome ſaſhes of lightening, accompanied with rain, began to preſent an awful ſcene. The waves, by their collision, produced a gleam by electricity which enabled us to ſee pretty clearly around us. In the mean time we were running at the rate of fourteen knots an hour : about eight, the main-top-ſail was carried away, and the yard ſhivered in pieces ; the fore-ſail and fore-top-ſail ſoon followed ; in a moment the wind ſhifted to the ſouth weſt, and blew with ſuch fury, that the ſhip lay water-logged in the greateſt diſtreſs. I can conceive no ſituation at ſea more critical than ours ; for had one of thoſe immenſe waves now broke upon us to windward on the ſtarboard quarter, we muſt in all probability have ſunk. Happily the ſhip righted, but the tempeſt continued to rage, and the wind blowing guns, we were again thrown on our beam ends. The powers of Æolus ſeemed to have marſhalled the elements for our deſtruction. We re-

mained in this miserable plight much longer than before, nor did the ship right until, cutting away the mizzen-mast, it went overboard, and eased us of its incumbrance.

We lost on this occasion two top-masts, the fore-top-sail yard, the main-top-sail, with the mizzen-mast and all its rigging: we had two men killed by the splinters of the fore-top-sail yard: the remainder of the night we spent in saving some of the rigging, and in clearing away the wreck. Our anxiety during the storm was much increased by the position of the mizzen-mast, which was over the side, and beat with such violence against the timbers of the ship, that we expected every moment she would spring a plank, or that the cordage of the wreck along side would entangle itself with the rudder.

We repaired our damage in the best manner we were able, and the wind having now abated, bent the only main-sail we had remaining. The following day at noon we saw the Cape of the Needles, east north east five degrees north, at the distance of eight leagues. The ensuing night we hove
the

the lead, which gave us forty-five fathoms, and we steered along a coast very little known; but at the dawn of the morning the land breeze springing up, we stood out to sea, and bore away for the Isle of France.

The 11th of August we reached the latitude $34^{\circ} 48''$, and according to the marine time-keeper of Monf. Bertoud, $56^{\circ} 48''$ eastern longitude, whilst the ship's reckoning placed us in $58^{\circ} 39''$. At half past six in the evening we saw a comet in the west north west, at the elevation of 4° . The tail was towards the zenith, and consequently in opposition to the sun, which was three quarters of an hour below the horizon.

On the 15th we saw several *goualottes*, a species of sea-fowl which is commonly seen in the vicinity of land. I knew, however, of no land near, our latitude being $32^{\circ} 51''$ and our longitude $63^{\circ} 26''$. On the 26th we saw the *Palle en cul*, a bird which announced our approach to the Isles of France and Bourbon. Next day we passed the Isle of Rodrigue; and the 29th,

came to anchor in a harbour which lies north west of the Isle of France.

The error of the ship's reckoning with respect to longitude was thirty-four leagues and a half westward, whilst that of the time-keeper was next to nothing. Our observations made with this machine placed the Island of Rodrigue $5^{\circ} 45''$ east from Round Isle off the Isle of France, and therefore the harbour of Rodrigue in $61^{\circ} 13''$ eastern longitude. On the charts, however, it is laid down in $60^{\circ} 45''$. From the examination of our time-keeper here and at False bay, we found it had gained one minute twenty-four seconds only in the space of an hundred and one days.

Here we found it easy to repair the damage we had suffered in the late storm; but in order that we might enter the south seas in the fine season, we remained two months in harbour, part of which time, however, we spent at the island of Bourbon, where we took in fresh provisions, and replaced our vegetables, which were found in a state of corruption in the bread-room.

Both population, and the productions of
the

the soil, in the Isle of Bourbon, are in a surprising degree superiour to those of the Isle of France. An appearance so little expected induced me to make some enquiry into its cause; and after informing myself respecting the succours afforded to both settlements by the mother country, I considered this fact as a fresh proof of one of my old maxims, that simplicity of manners, and the diligent cultivation of the soil, form the only solid basis of a flourishing population. These are the only arts known to the happy Bourbonois; whereas, the prevalence of vanity and intrigue in the Isle of France has damped its prosperity, and greatly retarded those advantages expected to flow from this island to our possessions in India,

C H A P. VII.

The supposed Existence of a Southern Continent—The Means to be pursued in the present Voyage to ascertain this Fact—The Barometer is not to be trusted in cold Climates and high Winds—Further Experiments on the Quantity of Salt contained, under different Latitudes, in Sea Water.

WE had authority from government to fit out a corvet at the Isle of France, for the purpose of facilitating the frigate's approach to land in the course of our discoveries; and this business being now accomplished, and every thing in readiness for our departure, we set sail the 29th of October.

I shall now mention some facts related by voyagers, which had contributed to lead men's minds to the idea of a southern continent, and, at the same time, the plan we meant to pursue for its discovery.

Capt. Paulmier de Gonneville relates, that in doubling the Cape of Good Hope he encountered a violent gale of wind; and, from
the

the damaged condition of his ship, being unable to make head against the storm, he drifted, but at length found himself off land, when he dropped an anchor: as the vessel required considerable repairs, he entered the mouth of a river which he says is about the breadth of the Seine. Here he found a people of affable and obliging manners. They were dressed in a species of mat and feathers: the children in general went without clothing; the country abounded in provisions, and was governed by petty princes who lived in a state of constant warfare.

The ships the Eagle and Mary were equipped in the year 1738 by the French East-India Company, for the discovery of a southern continent, and, after reaching the parallel of 50° south latitude, and 15° east longitude from the meridian of Paris, scarcely quitted the above parallel till they arrived at 35° East. In the course of this navigation they discovered a promontory, which, being seen the 1st of January, they named Cape Circumcision. But the ice, joined to a thick atmosphere and heavy gales of wind, prevented their going on shore

58 VOYAGE TO THE SOUTH POLE.

shore to investigate the nature of the discovery.

The Mascareign and Castries sailed in the year 1771 from the Isle of France, to carry back to his native country the Indian whom Mons. de Bouganville had brought with him to Paris from the island of Otaheite. Having reached 47° South latitude, with a longitude of between 16° and 17° , they sailed east, deviating little from the same parallel till they arrived at the island of New Zeland. In this route they discovered two groups of small islands, which they named, from their extreme sterility, the Arid isles. The first is situated in the latitude of $46^{\circ} 30''$, and by the meridian of Paris $35^{\circ} 42''$. The second is in the latitude of $46^{\circ} 16''$, and in the longitude of $47^{\circ} 36''$, and is entirely barren. The vessel experienced in this passage frequent fogs, snow, and severe gales of wind.

It would plainly appear from the above voyages, as well as from the relations of other navigators, such as Commodore Anson, who, in doubling Cape Horn, made a long run southward, that if a continent actually

actually exists in the south seas, the part of it which borders upon the Atlantic must lie in a much higher latitude than 50° ; that the part of it which extends towards the Indian ocean is in a latitude somewhat higher than 47° ; but that as to the coast which should stretch along the Pacific ocean, our data do not enable us even to form a conjecture. Land, it is true, has been laid down on the charts, as discovered by Capt. Drake, south south west from Cape Horn, and therefore much higher in latitude than the two points above mentioned.

These voyages serve likewise to evince, that if the land visited by Monf. de Gonneville is actually south of the Cape of Good Hope, it can only be an island, and must lie south east or east south east from the Cape. I confess I have many doubts respecting the position given to this land by that navigator; his narrative, as it relates to the people he met with, cannot apply to the inhabitants of any land directly south from the Cape, but is highly descriptive of the natives of Madagascar; there the kings are constantly

at war with each other; the people are of gay affable manners, and dress in a species of mat; the children go naked, and the birds are peculiarly beautiful in their plumage. There are, besides, rivers in the southern part of the island large enough to have received the ships of Mons. de Gonneville; and gales of wind from the sea frequently blow into the mouth of the channel with great impetuosity. From the antiquity of this voyage, it seems by no means improbable, that the part of Mons. de Gonneville's narrative in which he describes the storm he met with in doubling the Cape of Good Hope, may either have been mutilated or misunderstood by the editor. Were the facts to be admitted nearly as they have been represented, it is evident that the land at which he went on shore, must lie in a vastly higher latitude than that of the Cape, since the strong gales prevalent in those parts set in almost uniformly from the north or north west. But then how can we reconcile the slight dress of the inhabitants, and the naked condition of the children, to the genius of a southern climate much higher in latitude than

than the Cape. The place I should assign to the discovery of M. de Gonnevillè would be in the south east or east south east; for if it lay directly south of the Cape, it would scarcely have been missed by ships passing between India and Europe, which, in order to escape the severe gales so frequent off the extreme point of Africa, used formerly to sail all the way to 40° of latitude.

We resolved, therefore, to proceed east, until we should reach the latitude of 38° or 40° . with the longitude of 35° or 37° ; for as the land visited by M. de Gonnevillè must have been of considerable extent, since it was parcelled out among a variety of different princes, we conceived we had a good chance of falling in with it in following this course. But in the event of making no such discovery, we meant to proceed to latitude 50° . and as nearly as possible to the place where the Eagle and Mary quitted this parallel, and then to pursue the track of those ships eastward. In the course of this navigation we hoped to have the merit of discovering different parts of the southern continent.

62 VOYAGE TO THE SOUTH POLE.

On the 16th of November we arrived in $38^{\circ} 1''$ south latitude, and $38^{\circ} 32''$ east longitude; the variation of the needle was $28^{\circ} 1''$. We had been unfortunate enough the two preceding days to have very hazy weather. On the 17th, we saw *goualettes* of a grey colour, birds which are generally discovered in the neighbourhood of land: the atmosphere was obscure and foggy. In latitude 40° . and longitude 38° . I repeated my experiments, and found that a hundred pounds of sea-water contained four pounds of salt.

The 18th we saw the grey *goualettes* in great numbers, and a species of fowl black and grey, which we named *capuchins*, from the sombre appearance of their feathers. Next day the wind blew from the north east with a thick haze; the weather was dry, but extremely obscure; the wind began to blow in squalls, and we saw the same species of sea-fowl as the evening before.

The 20th, in latitude $43^{\circ} 45''$. Reaumur's thermometer stood at 6° above nothing. Beside the sea-fowls of the preceding day, we saw penguins, and multitudes

tudes of sea-wolves: during the night we founded every four hours; the west and north west winds blew fresh, and shifting to the south west, continued in violent squalls till morning. These gusts of wind were accompanied, sometimes with snow, and sometimes with rain; but we had, nevertheless, in the course of the day, intervals of fine sunshine. Our latitude was $44^{\circ} 21''$. and longitude 39° .

On the 23d we saw a tree floating with all its roots, penguins, sea-wolves, some large sea-weed, with a tubical stem and broad leaves, circumstances which we had no doubt were indications of land; but in what quarter we ought to go in search of it we were at a loss to imagine. The south west wind, accompanied with a rolling sea, obliged us to rise a little in latitude; we had not the smallest reason, however, to suppose that our chance of finding land was by this means in any degree diminished. We lay to during a part of the night, and when the weather was hazy and overcast, hove the lead at regular intervals, and, in short, were at all manner of pains for its discovery,

64 VOYAGE TO THE SOUTH POLE.

covery, but in vain. It seems barely possible that the above appearances were fallacious; at any rate we sailed fifteen leagues east south east from the above point, without discovering any thing like land.

The weather became more moderate, with a tolerably serene sky, and on the 24th and 26th the corvet was in condition to carry all her small sails.

On the 26th, being in latitude $46^{\circ} 12''$. and longitude $41^{\circ} 25''$. I found that 100 pounds of sea-water gave $4\frac{1}{12}$ pounds of salt. The wind, when it shifted towards the south, blew with greater violence than when it blew from towards the north point; but in the first case the atmosphere was clear, and the horizon as full of stars as in a night under the finest climate.

The weather continued serene till the 27th, and during this interval we saw very few sea-fowls. Perhaps that instinct which in stormy weather induces these animals to seek shelter on land, may often, in those desert regions of the ocean, draw them towards the ship from their mistaking it for a rock. I remarked that we saw the king's
fishers

Fishers, and the Damier or Petrel, in greater numbers at the setting in of bad weather, or in a gale of wind, than in more moderate weather. This last species I did not mention before, because it may be presumed, from their great frequency at the Cape of Good Hope, that they are sufficiently known. Their name is derived from their plumage, which is speckled black and white: they are not very frequent in high latitudes, nor are they equally common in hot climates as at the Cape; whence it seems probable that the temperature most suitable to this species is between 26° and 46° of latitude.

On the 27th, being in longitude $41^{\circ} 30'$ we cut the parallel of the first clustre of isles discovered by the Mascareign and Castries. Though it is placed by these ships in longitude $35^{\circ} 42'$, yet considering the force and prevalency of the westerly winds in those parts we were inclined to believe the ship's reckoning had been erroneous, and that their actual position is much further towards the east; and we conceived that if these little islands were the append-

ages of any extensive tract of land we should probably fall in with it in our present course. From the usually thick state of the atmosphere and violence of the winds, it seemed not improbable that these ships might have passed within a moderate distance of a large territory without seeing it. But it should seem, likewise, that if any such land exists in their vicinity, it must lie in their northern quarter; for had it been situated towards the south, as the ships pursued this direction, it would scarcely have escaped their observation. Be this as it may, in the course we followed we had not the smallest notice of land; neither on the evening preceding the 27th, nor on any of the immediately succeeding days, did we observe Sea-wolf, Penguin, or indeed almost any bird whatever. It is true we had some hazy weather, but it was by short intervals, and the sky was upon the whole tolerably clear.

On the 30th we reached the latitude $49^{\circ} 27''$. and longitude $42^{\circ} 27''$. we were now rising into considerably high latitudes; the wind blew fresh from the north-east with a high sea, and snow fell in large flecks during the

squall; the mercury meanwhile was not quite 4° above nothing. We saw sea-weed and many birds of the same species we had seen before; a white fowl in shape resembling the *Goualan*, and a black one, which did not appear to belong to those tribes that venture far from land. His wings are short and broad, and in his flight, which is effected without soaring, he has an abrupt quick stroke—circumstances which show him but little qualified for very extensive excursions from lands.

The 1st of December the wind veered to the north east a quarter north, with a thick haze, but it soon shifted to the west, freshened considerably, and the haze ended in a fall of snow. The mercury was five degrees above nothing, with the air extremely cold, and the sky deeply overcast. We saw a Sea-cow, and different sorts of sea-fowls.

The 2d, we had a great deal of snow, which fell incessantly, even between the squalls; the air was penetrating, and the mercury stood at 3° above nothing, while the wind and sea were boisterous as the evening before. Next, day the wind still freshening,

came at length to blow a gale; the snow continued, and the mercury sunk to 2° . Our latitude by the ship's reckoning was $50^{\circ} 2''$. and our longitude $52^{\circ} 43''$. Want of accuracy in the barometer, especially during high winds, is the reason of my not having mentioned this instrument before. In more temperate climates I had found it very accurate; but now, provided the weather was dry, it did not fall, let the wind be however high it would; on the contrary, it sometimes rose, particularly in a clear state of the atmosphere. This instrument, which in the winter months at the Cape had stood at 28 inches three or four lines, during a high wind, pointed, the 30th of November, 27 inches two lines, with the thermometer 4° above nothing, the wind high, and a great fall of snow. The 1st of December the mercury fell to 26 inches 10 lines, while the thermometer was 5° above nothing; the weather was at first hazy, and the wind, in the N. E. $\frac{1}{2}$ N. shifting to the N. W. and W. freshened considerably, with snow, which the atmosphere seemed to threaten more. Next day the

barometer

barometer mounted to 27 inches one line, and the thermometer sunk to 3° : the wind, meanwhile, increasing, with the same fall of snow, though in the intervals of the squalls the sky appeared much less loaded.

On the 3d the barometer rose to 27 inches four lines, and the thermometer fell to 2° though we had a strong gale of wind, accompanied with a great fall of snow; it is true the atmosphere was at times pretty clear, but the great and general irregularity of this instrument prevented my placing in it the smallest confidence.

On the 4th, the wind having gone round to the north, the weather relaxed greatly of its rigour; the sun shone in all its splendor, and the winds died away towards evening; we encountered currents, but were not able to discover their direction. The variation of the needle was 29° .

This serene weather was of short duration: next day the wind changed to the N. N. E. stormy, and soon after to the N. N. W. with very heavy squalls: the atmosphere was thick and hazy, with a fall of small rain. This bad weather lasted

during the whole of the 8th, and in the evening the wind veered to the N. N. W. still blowing in violent gusts, with snow. In the course of this severe gale we had intervals of clear sky; the frigate lost her fore-sail; meanwhile, we saw some sea-fowls. On the 7th of December our longitude was $58^{\circ} 2''$. and latitude 50° . the precise parallel we were desirous of.

The wind shifted on the 9th to the N. N. W. and the weather became less tempestuous, though snow fell incessantly from a thick atmosphere. We saw few birds except Penguins, which were in great numbers, and so surprisingly tame, that they followed us, hovering along-side, and chattering like flocks of ducks.

Next day, besides birds such as we had already frequently observed, we saw a very large species of Sea-fowl, Moutons de cape, and sea-weed. The weather became so fine, that the corvet set her top-sails; the 11th was foggy, with the wind at N. N. W. Next morning it blew fresh, with rain; and at noon the wind shifting to the W. N. W. became so tempestuous, that
we

we had almost lost the mizzen-sail and yard. It snowed, and we saw some birds, chiefly penguins.

Towards evening on the following day the sea subsided, and became beautiful; the wind at W. S. W. died away into a gentle breeze, and we saw few birds.

C H A P. VIII.

Discovery of several Islands and a main Land

—One of the Islands is fixed upon as a Rendezvous for the two Vessels, and is therefore named the Island of Re-union—A new Coast is also discovered.

THE day we had so eagerly looked for at length arrived; on the 14th, at half-past seven in the morning, we discovered a large shoal of ice apparently stationary on a rock, and soon after, the man at the mast head saw high land stretching north and south as far as he could see. We stood directly for it, and at ten o'clock we hove

the lead, which gave us 110 fathoms water, on a black muddy sand mixed with shells. At noon we steered toward a large round hill, appearing in the south east two degrees east, at the distance of five leagues. Our latitude was $49^{\circ} 10''$. and longitude $66^{\circ} 18''$. East from the meridian of Paris. Ever since our quitting the Isle of Bourbon we had regulated our longitude by the time-keeper, having found that it gave greater certainty in those thick and boisterous regions than either the ship's reckoning, or any observations we could take of the heavenly bodies. At three in the afternoon we were only at a league and a half's distance from land, when we stood for a kind of recess in the coast, in hopes we should meet there with good anchorage.

The coast presents a mountainous and very rugged aspect, and seems to have been intersected in many places by the impetuous fall of torrents. The interior country, as far as we could discern, was covered with snow, which, far from exhibiting a smooth surface, as in Europe, appeared in large white patches, suggesting the idea of a rude
and

and uncultivated soil. Along the coast were many beautiful cascades, formed by large torrents which were fed by the melting of the inland snows. A river, skirted with a lively verdure produced by some straggling thickets of shrubbery, joined the sea through a chasm in the mountain.

In the morning we had fine weather, and a pleasant breeze from the W. S. W. but the wind shifting abruptly towards the north, died away, and the weather became hazy. We stood off the coast the ensuing night, and had a moderate wind, accompanied with small rain.

Next day, the weather still moderate, the wind veered to the south, and the sky became clear towards evening: in the night, during the general watch, we saw a beautiful Aurora borealis; at two o'clock P. M. our soundings were 95 fathoms on a coral bottom, and at six in the evening 105, on a bottom of the same. In this depth we brought up two pieces of coral of a deep red, which presented a number of ramified tubes resembling the root of the cocoa-tree. We saw very few birds, except a large Mouton,

74 VOYAGE TO THE SOUTH POLE.

Mouton, some Penguins, and a fowl with a large broad wing.

The morning of the 16th we had 110 fathoms water, on a bottom of fine grey sand, mixed with clay; and at five, having a small breeze at south east, with a clear horizon, we discovered a little island in the form of a wedge, sloping towards the west. A high land, which we found to be likewise an island, was seen soon after, south west from the former. The first we named the Island of Re-union, because we agreed it should be the place of rendezvous in case of separation; and to the second we gave the name of Isle de Croy, in honour of a gentleman, who, on all occasions distinguished for his publick spirit, had been particularly careful to make such arrangements as under Providence might give success to the present expedition.

The following day we saw high land south and one quarter south east from the Isle de Croy, which we examined, and found to be an island, which we named Isle de Rolland, from the ship. Between the above two large islands we saw four others,
much

much smaller, and low upon the water. A kind of promontory, which we named Cape François, next presented itself, with a coast stretching to the south east. This is the main land, and we found it, upon investigation, contiguous to our first discovery on the 14th. In the vicinity of Cape François, eastward, we discovered two bays separated by a strip of land of a remarkable form, having the effect of a magnificent arch or gate-way, through which we saw light. In what manner the elements acting upon this ridge had in process of time made such an opening in its sides as to exhibit the present singular appearance, it is difficult to say—

Tantum ævi longinqua valet mutare vetustas.

From the 17th to the 23d, the winds were very irregular, with a sky sometimes clear and sometimes hazy. We contented ourselves with a general survey of the figure of the Coast, which making a sweep from the north east to the south east forms a most extensive gulph. The waves broke with great violence on the surrounding rocks,

4

and

76 VOYAGE TO THE SOUTH POLE.

and we were not a little apprehensive of being wind-bound in this perilous situation. In the bosom of the gulph is a low island of considerable extent. We saw many whales with whitish spots, and a species of Penguins of a reddish colour, which hovered about the ship, frightening us with a hoarse obscene scream between that of a crow and a duck. The keenness of the air produced a sharp appetite in the ship's company, in so much that some of them fainted on duty for want of sufficient subsistence, and it was necessary to increase their daily allowance.

From the 27th to the 29th, the wind being at W. N. W. blew in such squalls as to endanger our rigging; some of the men became indisposed from the severity of the weather; it was full moon, and we had fog, rain, and hail alternately to contend with.

The 30th was fine weather; but from the 31st to the 2d of January, 1774, the wind veering in the same quarter from N. N. W. to N. W. freshened into heavy gales.

The violence of the storm had carried us considerably

considerably towards the east, and, on the 5th, we discovered new land stretching out of sight east and west. The lead gave us 125 fathoms on a fine black sand mixed with small pebbles of the same colour. On this coast the land appears lower and less rude than any we had hitherto observed. In the morning we saw numbers of Penguins and a species of small Gouallettes.

C H A P. IX.

Landing at the Island of Re-union, and Possession taken of the discovered Countries—

The Crews suffer very severely from the Rigour of the Climate—Reflections on the Prevalence of Storms, and particular Winds in this Part of the Globe.

FROM the 3d, the wind continued at east varying to the north east, but moderate with a beautiful sea; we profited by this favourable interval to repair to the Island of Re-union.

On the 6th we landed in the first bay,
east

78 VOYAGE TO THE SOUTH POLE.

east from Cape François, and took formal possession of our discoveries.

The ship anchored in a small road about half a mile in length, and a third more in breadth, containing a small port or harbour which fronts the south east, and is half a mile broad at its entrance. In the road the soundings are from forty-five to thirty fathoms; and in the harbour from 16 to 8—a depth of water which continues the same close to the shore. The bottom, in both, is of black sand mixed with clay. The coast, on each side, is lofty, but green, with an abrupt descent, and swarms with a species of Bustard. At the upper end of the harbour is a little hill, between which and the sea, is a small bank of sand and gravel; across which, a river inconsiderable in its dimensions, but containing very fine water that issues from a lake beyond, and, at some distance from the hill, runs into the sea. The sand was covered with Penguins and Sea-lions; which, from their great familiarity and entire freedom from any alarm at our approach, seemed to assure us, that the country was totally uninhabited.

The

The
five
leaf,
but
of a
unio
66°
30°
O
weat
so li
preh
selve
In
and
the
was
of
and
ing
for
the
Isle
tov
me
fat

The soil produces a kind of grass, about five inches in length, with a broad black leaf, and, seemingly, of a rich quality; but we saw not a single tree nor the vestige of a human habitation. The Island of Reunion lies in latitude $48^{\circ} 21''$. and longitude $66^{\circ} 47''$. The variation of the needle was 30° . always towards the north west.

On the morning of the 9th, it being fine weather, we sent off a boat to the shore; so little were the Penguins and Bustards apprehensive of us, that they suffered themselves to be knocked down with the oar. In a short time the sky became overcast, and the boat in doubling a rocky point on the starboard, in order to enter the road, was suddenly driven back by a violent gust of wind, rain and hail. The boat drifted and was every moment in danger of sinking; happily, however, after a storm of some hours, the bad weather abated, when the crew finding themselves near Rolland Isle, and in view of the Corvet, made towards her with all possible dispatch. The men, who were completely worn out with fatigue and cold, had no sooner got on board

board than the boat sunk. We immediately stood out to sea.

It is astonishing how much we suffered from the intenseness of the cold during the storm, which lasted from ten in the morning till three in the afternoon. The wind set in from the south east, varying from the south point to west south west; and the snow and hail adhered in a thick crust to the masts and rigging. An attempt was made to take in the foresail which was in danger of being carried away; but the strongest men on board were unable to hand it; it was a perfect sheet of ice. Such was the weak and benumbed condition of the crew from the frost and piercing wind that covered them with snow and hail, that, after repeated exertions, the business was left uneffected. What shall we think of this extraordinary climate? We were now in the middle of the fine season, this very day corresponding to the 9th of July in the northern hemisphere.

The currents in these regions seem to run N. E. though in the gulph, east of Cape Francois, they appear very irregular;

it

it should seem, however, from the direction in which the corvet drifted, between the 7th and 8th, that they set in from the south west, and made the circuit of the gulf.

The days following we had fair and hazy weather alternately, and in a very rapid succession; the mean heat at the Island of Reunion I computed to be about 6° above frost; and at the same place 100 pounds of sea-water gave four pounds and a half of salt. I observed that we had more haze and rain in the middle than in the beginning of summer; since for some time the rains and fog had become extremely frequent, whilst the winds were in general less violent and more variable. All along, however, we had occasionally strong gales, such as that of the 9th; and the twilight, from the variety and brilliancy of colouring which it spread over the heavens, afforded a very beautiful prospect. I imagined that the winds were more boisterous about the time of full moon than in her wane.

Ever since we crossed the meridian of the islands discovered by the Mascareigne and Castries, the wind began and continued to set in with a haze from the N. N. E. quar-

ter, varying to the N. N. W. where it generally became fresh. It then used to veer in squalls, but with less haze, from N. W. to W. N. W. when the weather clearing up, it frequently terminated in a calm. If the wind continued to veer towards the south west, the weather became rough and tempestuous in violent squalls; but as its force seemed to exhaust itself, the weather became gradually fine. In a short time the wind again returned to the N. E. or N. N. E. fresh and hazy.

From the time of our arrival on this newly-discovered coast, the wind was seldom in the east, and in the few instances of its blowing from that quarter, it was always faint, and accompanied with a clear sky. The character of the winds, in other respects, was much the same as has been mentioned, with this difference, that they blew most violently, attended by rain or fog, when passing from the N. N. E. to the N. N. W.—and as they shifted in squalls to the W. N. W. the weather gradually became fine. If they continued to veer from the W. S. W. to the S. W. the sky became

became serene with a gentle breeze; but soon getting round to the N.E. and N.N.E. they began to blow with their usual violence.

I found, upon comparing the journals we kept during the interval of our separation, that the winds in these regions are extremely limited. It has happened, that when the two ships were only eight leagues afunder, the one was labouring in a storm, while the other enjoyed moderate weather; and hence the capricious and turbulent genius of these seas.

Considered in their abrupt operation, I discovered some analogy between the winds in these latitudes, and in the seas of Siberia and Nova Zembla, where storms and intervals of fine weather follow in a succession surprisingly rapid. The latitudes which I now compare are no doubt much higher in the north seas than in the south, still, however, a comparison may be made between them, since in similar latitudes the sea is much more rough and tempestuous in the southern than in the northern hemisphere. This peculiar violence of the south seas I am inclined to attribute to their amaz-

ing extent. They flow from east to west without any material interruption, if we except the points of South-America and New Zeland, limits which include a space equal to two thirds of the globe. But be this as it may, nature, I am convinced, conducts herself, in all cases, according to fixed and certain rules; and if, on some occasions, she should seem to act anomalously or from caprice, such appearances are to be imputed to the weakness of our limited capacities, which are unable to collect from a very partial survey of the different parts the unity and consistency of the whole.

The 16th the wind changed from the north east to the north west; on the following day it blew fresh, accompanied during the night with snow and hail.

C H A P. X.

The Vessels quit their Discoveries, and sail for Madagascar—Sudden Transition from severe Cold, to fine temperate weather—Anchorage in the Bay of Antongil, where the Sick are refreshed—Description of the island of Madagascar—The Author, desirous to inform himself of the natural History of the Island, and the Manners and Customs of the Inhabitants, embarks in a Canoe, and lands near a small Village.

ON the 18th we quitted our cruize, which from the extreme caution of the commander we had continued without any voluntary deviation for the space of thirty five days. We now set sail for the Island of Madagascar, standing northward with west and west south west winds.

We soon perceived an agreeable mitigation in the severity of the atmosphere; half the men necessary two days before to hoist a sail from the thawed and flexible condition of the rigging, were now fully equal to

86 VOYAGE TO THE SOUTH POLE.

the task. The thermometer in my cabin stood after sun set at nine degrees; and rose in the open air to eleven; but it was then exposed to a wind blowing from the quarter of the south. Some of the crew suffered from collicy pains and extreme lassitude, owing perhaps to the quick transition from a cold to a milder climate; but the scurvy soon manifested itself, which was a more formidable enemy.

From the 7th to the 9th we had been at much pains to discover, though without success, the Island of St. John de Lisboa, which is laid down in latitude 25° . and longitude 55° .

On the 11th we began to encounter the storms and rains then prevalent on the coast of Madagascar.

The 17th we discovered the coast of St. Mary's Island, and soon after that of Madagascar; and on the 21st dropped anchor in Antongil bay, close to a creek in the Island of Marrosse. On this little island we erected tents for the accommodation of such as were ill of the scurvy. From the woods we had plenty of lemons and pine apples, with an ample

ample supply of fruit, fowls, and fresh meat, from the Indian villages, whence our sick derived the agreeable prospect of a speedy recovery.

The Island of Madagascar is about nine hundred miles in length, and one hundred in breadth, and, next to Borneo, is the most extensive in the world. As it extends from the 12° . to the 26° . of latitude, it is favoured with a mild and agreeable climate. The soil is of amazing fertility; travellers, and especially botanists who profess to be accurate observers of nature, maintain with a kind of enthusiasm that she no where lavishes her bounty with equal prodigality as in this island. Here she indulges in a peculiar display of vigorous and multifarious vegetation. The country from its vast extent, south and north, includes various modifications of climate, and rears the productions of the regions situated in the higher latitudes as well as of those placed between the Tropics. The parts lying towards the north seem somewhat analogous in soil and climate to the isles of the Chinese Archipelago; and in these I have no doubt spices might be cultivated with

G 4

advantage.

advantage. The fruit Rabinfara is common in the woods; a substance which unites in it the qualities of cloves, cinnamon, and nutmeg, and when gathered a little before it arrives at full maturity is capable of supplying the place of those spices. The number of rivers in Madagascar, the superior quality of the cattle and poultry, the great abundance of corn, indigo, and sugar, with many other valuable productions, all concur in attesting the luxuriant fertility of the soil.

The travellers who first visited this country, imagined that it contained mines of gold and silver, an idea still maintained by some persons, though in my opinion with few or no reasons to support it. I found in the course of my researches rock crystal, the specimens of which were eighteen inches in length, and from five to six in diameter. I saw likewise pieces of Marcassite, which might have been mistaken for the ores of the precious metals.

But my chief object in this island was to study the manners and principles of action in the people, whose great population and original

nal settlement, probably extremely ancient, seemed to militate with the notion of finding simplicity of character in their present circumstances. Some faint traces of religion, much superstition, no public mode of religious worship, gleams of goodness, alternate examples of cowardice and courage, a strong propensity to suspicion, the usual mark of treachery; usages in short in flat contradiction to every thing like delicacy of sentiment, and good morals among other men, are particulars, which, if true, well deserve some investigation.

The little island of Marrosse did not escape my notice; but the inhabitants, who are few, invited by the society of strangers, having, for the greatest part withdrawn to the main land; it was by no means in condition to gratify my curiosity. I imitated their example, and went to reside in a village adjacent to the harbour; but as it was occupied by a kind of military colony, which had arrived from Europe a few days before us: such a mixture of natives and foreigners seemed little calculated to promote my views. I now fell in with some
men

men who had been sent to buy provisions in a distant village, when, learning that it was entirely free from the company of Europeans, I made choice of it for the place of my residence, and departed. My eagerness however to profit of a small canoe, which was just returning thither, had nearly put an end to all my enquiries; after doubling the Island of Marroffe, the wind freshened, and our little paltry boat, not exceeding two feet in breadth, was unable to cope with a high swell which suddenly arose in the sea. The water poured into her on all sides, and as there were only three persons in number, we were unable to row and bail the boat at the same time; fortunately I observed that the coast directly opposite consisted of a sandy soil, whilst a little further on it presented a rocky and dangerous shore. Not a moment was to be lost; we instantly put in for land, and going right before the wind we approached it with great celerity. Still however as the surf broke upon the beach with great violence, I could think of no expedient, by which, the boat might be kept above water, but that of hoisting a sail;

the experiment succeeded to our wish, and running a considerable distance on shore, we escaped without any greater misfortune than that of several waves passing over our heads, and drenching us to the skin. A number of Indians were standing on the beach, who had come about a quarter of a league to invite me to pass the night in their village. They offered me their services in transporting my baggage, and seemed forward to shew me every mark of kindness. Meanwhile I could not help observing, that the part of my things they took up with the greatest alacrity, was a basket, containing some bread and bottles of wine.

C H A P. XI,

The Author visits the Chief of the Village, from whom he finds a most cordial reception — He makes an Excursion to another Village, where he meets with two Incidents, which serve to show the selfish Disposition and Cunning of the Natives.

ON our arrival at the village, I was conducted to the mansion of the Chief, who saluted me with much civility, and soon after desired I should be shewn to an apartment, which was ready with a fire for my accommodation. The floor was covered with a mat, and above it, towards the top of the chamber, was a rich carpet. I was followed into my bedroom by a croud of Indians, who behaved respectfully; though they put many questions to my conductor, and made it a very late hour before it pleased them to withdraw. After they had been regaled with bread and wine, they were succeeded by the ladies, but in a smaller number; and they all retired soon, except two or three

three who had no scruple to honour me with their company as long as I thought it agreeable. I now recollected the relations of travellers respecting the good nature of the sex in the island of Madagascar, and began to be of opinion, that such tales were not wholly void of foundation. I was at length left by myself, though not till the night was considerably advanced.

In the morning I received an early and obliging message from the chief, inviting me to assist in drinking Toe.* Upon entering an assembly of about a hundred and fifty of his vassals, he made me sit by him at the upper end of the room, while the rest of the company remained on their legs: There was presently introduced and distributed amongst the guests a species of liquor consisting of the juice of the sugar cane, fermented with myrtle and mustard; I drank to the health of the Chief, and after attending his levee upwards of two hours, and receiving from him a thousand kind attentions, I took the liberty to withdraw.

A few hours afterwards I had a second message, with an invitation to dinner; at

* Named by the English a Toster.

this

94 VOYAGE TO THE SOUTH POLE.

this meal he was attended only by his own family; the women took their places at our backs, and performed every office of menial service. Our board was furnished with plenty of rice, piled upon fig-leaves, and garnished with pieces of fish and fowl, which were dressed with different sorts of herbs. Figleaves were substituted likewise for plates and spoons; each spoonful of rice was moistened with fish broth before it was carried to the mouth; and this distribution of sauce was the care of the Chief's daughters; for it seemed to be the department of his wife to serve up fresh supplies of rice and fowl as occasion might require. I ordered in some of my wine and our entertainment became tolerably gay. I now withdrew to my apartment and after a small interval sent the chief an invitation to taste another bottle of my wine. I was immediately honoured with his company, and at the conclusion of his visit presented him with a few bottles. The weather having set in fine I took leave of my host, after engaging him to come on board, where I assured him he should be received in the best manner. I gratified his wife and daughters with some large needles,
and

and we parted on the most friendly terms. A number of Indians, charging themselves with my baggage, followed me to the boat, and after acknowledging their services by a present of needles, I proceeded on my excursion.

In the evening I arrived at a village, called Mahanlevou, where I proposed to reside for some time. It has an agreeable situation, being placed about a gun shot from the shore, on a small river, whose banks, though not extensive, are pleasantly diversified with tufts of wood and meadow ground. The village is completely insulated at high water, by a little canal in the sand. The houses, though at no great distance from one another, leave intermediate spaces, presenting the sweet verdure of various trees and vegetables. The population of the village is considerable, though at this time the people were generally scattered over the country, being employed in the culture of their rice fields.

An incident occurred the day after I came to the village, which began to throw some light on the character of the natives. A Frenchman, who had lived in a state of intimacy with a daughter of the chief, for reasons

sons I could not learn, desisted somewhat abruptly from paying her his usual court. I must observe, that it was customary with the chief never finally to conclude the sale of his bullocks, until the shallop appeared which was to carry them away. The shallop now made its appearance, but the Chief would listen to no terms whatever, unless it was previously stipulated, that the Frenchman should immediately return to his mistress, and behave to her with his former kindness.

A proposition so little expected, could not fail to excite my surprise, which was by no means diminished when I saw the Chief's requisition treated as an object of grave deliberation in an assembly of the principal inhabitants. From the sequel of the business however, I had sufficient reason to be satisfied that a principle of interested policy was at the bottom of this extraordinary behaviour; in short, that the Chief's charge against my countryman was only a mercenary pretext, employed to extort from him some additional presents. Next day one of our people, desiring to frighten away some children who teased him with their petulance,

lance, threw at them a piece of wood, which unluckily struck the head of a boy belonging to the Chief. The Chief, without discovering the smallest symptom of passion or resentment against the offender, sent his son, desiring we would dress his wound: which was done by wrapping a bandage of linen cloth round his head. When the boy appeared, however, with his head tied up with a bandage of little value, the parent was unable to conceal his anger. Thus I have mentioned some situations in which they appeared to me to be selfish and designing, whilst at the same time I will do them the justice to relate, that in receiving the trifling presents which they either solicited or expected from our generosity, I could not observe the smallest appearance of rapacity. They are upon the whole frank and open in their dealings, dispose of their goods on moderate terms, and are not accused of ever departing from any part of their engagements.

In the same manner I might have mistaken the character of this people, had I only attended to their behaviour as it regarded strangers; for I am convinced that a selfish

spirit exerts itself towards all persons possessed of such articles as can administer either to their comfort or pleasure. But having said this, I am not at liberty to add, that the same principle has place in their intercourse as neighbours and friends. They visit and pass some time at the houses of their acquaintances; and seem without any illiberal motive mutually useful to each other in their daily occupations. If one of them is in want of rice, he goes without reserve to find a supply of it at the house of his neighbour; if a family moves into the country, in their absence, their house and canoe are at the service of any acquaintance in the village; circumstances which plainly exhibit naturally kind and benevolent dispositions. I had the pleasure to receive from them various little presents, and I always found that a pair of scissars, a few needles, or a little brandy, gave ample satisfaction, and were regarded as more than an equivalent for what they had given me. I was not employed in the purchases we made of provisions for the ship, and on that account, was considered, I believe, as a disinterested stranger.

C H A P. XII.

Quarrel between the Governor of the French Colony, newly settled at Madagascar, and one of the Native Chiefs—the Laws of Hospitality are inviolably preserved by the Author's Host—A Village is burned, and several of the Natives killed by the Europeans.

I Had been but a few days at this place, when the Governor of the new colony, settled five leagues from Mahanlevou, quarrelling with a Chief of consequence in the island, rashly gave orders to fire upon him; an insult which the Indian retorted with becoming dignity and spirit. These acts of hostility spread a general alarm over the country, and the Chief of our village, collecting his followers, prepared to stand on his defence. Being only four strangers at this place, we, in our turn, judged it but prudent to be prepared, and, therefore, besides our small arms, loaded a swivel, which by some accident had been brought on

shore. Our alarm did not escape the vigilance of one of the Chief's daughters, who communicating her suspicion to her father, he immediately stepped forward to remove our fears, and express his concern for the present interruption of public tranquillity, assuring us at the same time, that in the character of his guests we had nothing to apprehend, either from him or the enemies of the French. He added, however, that should this unhappy dispute admit of no amicable compromise, as it was not improbable we might be inclined to take part with the French planters, so he, in like manner, might find himself obliged to espouse the cause of his countrymen; but that in the meantime it was his intention to remain neuter, though in a state of defence. He concluded, that, whatever might happen, we should be treated and esteemed as his friends and allies, as long as we chose to live under his roof.

The village of Mahanlevou was now no longer the peaceful and agreeable retreat we had found it; all was clamour and confusion: guards posted at regular distances; pa-

troles

troles on the roads; spies passing and re-passing on both sides; labourers busy in throwing up works around the fort; women, children, and herds of cattle removing into the interior parts of the country; were pre-sages of an approaching war, whilst amidst those warlike preparations all social inter-course was completely suspended. I had no choice but to return to the ship, and therefore my visit to Mahanlevou was unfortunately limited to twelve days.

The existing breach was not to be healed by the lenient hand of negotiation, and nothing less than an appeal to arms would satisfy the governor. Having resolved to seize the person of the Indian Chief, or if he should happen to make his escape, to burn his village, he required that we should arm, and lend him our shallop to second his enterprise, a requisition which we did not think ourselves at liberty to refuse. But, alas! what a sad violation of every tie of social convention! we were now going in cool blood to carry fire and sword against a man, with whom we had formerly exchanged presents, and every token of a

H 3

covenanted

covenanted alliance; and who, but a few days before, attended by his wives and daughters, had made us a visit of confidence and affection. I own I could not figure to myself the open and manly aspect of this Indian Chief, the unaffected and gentle demeanor of his women, with an innocent and infant offspring, all doomed to the flames, or to expire under those very hands which had so lately received their caresses, without being impressed with sentiments of horror. It is impossible to express the indignation I felt at the conduct of the governor. A man but just emerged from obscure life to a responsible situation, and who yet had the presumption to prostitute the blood of two nations to gratify a personal animosity; a man who, uncandid enough to admit of no competition between his rights and those of another person, did not scruple to disgrace the honour and justice of his country by the perpetration of the basest crimes. Were the Governor of a distant settlement modestly to consider how little in the eye of general justice he may differ from a Freebooter or Pirate, he would have some forbearance with the ancient inhabitants of a country.

He

He would be more careful to abstain from every act of injustice and oppression; he would take up arms with reluctance, and use them with moderation; or, if urged by the necessity of the case, and the duty he owes his country, he should reduce the natives to a state of servile obedience, still it should be expected, that his humanity, feeling their misfortune, would gladly garnish the yoke with flowers, that it might sit light on the galled and degraded necks of the vanquished.

It was with unspeakable satisfaction that I found I should have no share in the campaign against the natives. It is indeed the duty of a military man to meet danger in the cause of his country, and to defeat all such criminal designs as may tend to disturb or subvert the public peace and security; but I hope this does not imply the tacit dereliction of character as a moral agent, or, in other words, the absolute barter, and alienation of reason, life, and liberty.

But such acts of enormity or incapacity in a Governor, have a tendency to betray the young and unthinking part of the service into crimes

of the first magnitude; of which the present dispute furnished a very melancholy example. It was in the character of a young officer of undoubted courage; but who from the Governor's misconduct, and his own indiscretion, was involved in such a scene of iniquity as must have imbibed his mind with shame and remorse to the latest period of his life. He had lived, since his arrival, with the unfortunate Chief, who was now to become the victim of the Governor's resentment, and had received under his roof every mark of confidence and hospitality. In the intercourse of domestic life, he tasted the pleasures of love blended with the most genuine sentiments of friendship; a state of happiness he had continued to enjoy for some time, having only joined his companions two days before. But viewing the present as an excellent opportunity for displaying the genius and talents of the soldier, all the endearing ties of love and hospitality were dissolved in a moment. He even availed himself of a local knowledge of the country, and conducted his men by intricate paths, known only

only to himself, to invest the mansion of his benefactor. False and mistaken notions of honour seemed to have obliterated in his mind, not only the sacred obligations of gratitude, but every tender sentiment due to his mistress. Probably he never once dreamed that he was about to act the part of a monster, who not contented with the lives of those who had lately taken him to their bosoms, was determined that one drop of blood in the whole family should not escape the brutality of himself and his associates.

The village and fort of the Chief were speedily reduced to ashes; but the inhabitants, getting notice by their spies of the approach of the enemy, had taken shelter in the woods. A few infirm women, who, unable to escape by flight, were endeavouring to hide themselves in the bushes, fell into their hands; captives who owed to the depredations of old age an exemption from the miseries of perpetual slavery. The troops returned to the governor in all the exultation of triumph, and presented him with a few articles of Indian furniture;
spoils

spoils but little formed to grace the arms, or gratify the avarice of his dependents. In what manner these hostilities finally terminated I am ignorant; but certainly they reflected no credit on our national character in the minds of the natives; a people who I confess, began to interest me much in their happiness and prosperity.

C H A P. XIII.

Distinction betwixt the Aborigines of the Island of Madagascar, and the adventitious Indian Settlers—Characteristics and Dress of the former—Their Husbandry—Their Religious Worship—Cautions to Europeans, who fix their Abode on this Island.

FROM the hair, complexion, and make of the natives, I conceive them to be descended from different races of men. Some are short and remarkably thick set in their persons, with lank, smooth hair, and an olive complexion: they have a strong resemblance
the

to the Malay Indians; nor indeed do I regard them as originally sprung from the Aborigines of Madagascar. Some are tall and well proportioned; have crisped locks, large and beautiful eyes, an easy carriage, and an open and unreserved countenance; and this class I should esteem the true posterity of the primitive inhabitants; their colour is nearly black, and differs but little from that of the natives on the Malabar Coast.

In their disposition they are lively and obliging, but wholly destitute of genius; vain, whimsical, interested; dexterous in the use and application of their bodily faculties; but without the powers of combination, and in the general conduct of life, light, precipitate, and incapable of prosecuting in their minds any thing like principle or system. They seem to have no title to what we call a decided character; good qualities they certainly possess as well as bad and hence I would class them with that description of men, who, though of a weak mind, are yet found to inherit a considerable portion of wit and vivacity. But

as

as they have few wants to be supplied, and fewer distinctions to promote rivalry, or sentiments of emulation, their weaknesses are rarely felt; while their virtues are of daily use, and operate habitually in the ordinary commerce of life. In emergencies, I mean situations of public danger, they might be mistaken for a people collected, systematic, and brave; but the result of their conduct never corresponds to these pretensions, unless the danger is of the greatest urgency, and requires to be repelled with the utmost promptitude.

They wear an apron at the girdle, and something of the same kind on the shoulders, with a bonnet constructed like an umbrella. The hair is combed into small tresses, and the beard is permitted to grow only on the chin.

The men are little addicted to agriculture, and are more inclined to look after their cattle, which roam in the woods. They construct war canoes, as well as canoes for the ordinary business of life. The latter are very small, and navigated only with the oar; but the former, which are the property

perty of the Chief, are much larger, and have a sort of rigging. Some of them carry a hundred men, and are in condition to sail round the island.

The women have expressive faces, are in general of the middle size, though many of them are diminutively short; and although I saw but few of them ugly, I cannot rank them either with the handsome or pretty part of the sex. They have a long apron tied round the waist, with a kind of underwaistcoat, which barely covers the breasts. They frequently wear, by way of ornament, a large plate of silver, of a circular form, and surprisingly well manufactured. A number of small silver chains are thrown round the neck, and fall down upon the bosom. The hair appears in a multitude of little tresses, dangling over the forehead, or on the corner of the eye; or turned up in the form of a crescent, or perhaps *à la grecque*, according to the particular fancy, or taste of the individual.

The women besides cultivating fields of rice, corn, and other sorts of grain, are employed

110 VOYAGE TO THE SOUTH POLE.

employed in planting trees and roots, particularly the cassava, or Madagascar bread tree, potatoes, and the banana or plantain.—The leaves of the tree, named rafia, by a particular treatment, are made to supply them with thread; and of these materials, dyed of various colours, they manufacture a species of cloth, woolly, and affords a very handsome article which is of dress. They are capricious enough, however, to give a preference to the cotton stuffs imported by Europeans from the continent, though of less value than their own. Every family is provided with a loom, and carries on a manufacture equal to its own consumption. From the leaves of a tree, named vacoua, they procure materials for matts, bonnets, bags, and other useful articles.

Their common food consists of rice, bananas, and dried fish; they consume very little either of fresh meat, or fresh fish; their drink is rice water, or the juice of the sugar cane, fermented with pimento and mustard.

The houses are small and in a very awkward stile of building. The walls are form-

ed of bull-rushes, and the roof covered with plaintain leaves. The principal part of the timber work, consists of massy pieces of wood, while the rest is of bamboo, very rudely and clumsily executed. The floor is laid with the pith of the palm, or some other tree, and in many instances is considerably raised above the level of the ground, to avoid the exhalations of the soil. Houses thus constructed, besides tending to preserve the health of the inhabitants, especially during the rainy months, guard them from the annoyance of serpents and different species of insects.

Such are the houses in which Europeans who have occasion to winter in this island, ought to reside; and as the preservation of health, in a country often fatal to the European constitution, is a matter of no small importance, they would do well to submit to that regimen which seems from experience best suited to the genius of the climate. I would therefore recommend to every foreigner, a light diet, abstinence from wine, and all fermented liquors; little animal food, especially if it is large
 2. and

and of a coarse quality, and least of all when it is salted. I would advise exercise to keep the bowels in order, as well as for preserving the elasticity and tone of the solids. His dress should be light and cool, and he need not be afraid of the sun, in a clear atmosphere, provided he does not sit or stand under its rays, when a stilness in the air denotes an approaching storm. It is necessary to be particularly careful to avoid wet or damp cloaths, which never fail to affect the whole frame with chilness; and indeed if an European is caught in the rain, he cannot do better than strip himself immediately, keeping his cloaths from the wet, and putting them on dry, when the shower is over. He should likewise avoid immoderate fatigue, and above all, every species of debauchery; his drink ought to be clear spring water of the best quality; for rain water here is to be avoided if possible. I observed this method of living myself in the island of Madagascar, and found it salutary from experience; and though the natives suffer little but from cutaneous disorders, Europeans, during the rainy season, are

liable

liable sometimes indeed from their own folly, to fevers of the most malignant kind.

Although, as I have before observed, the natives have no regular form of religious worship, yet they adore one supreme being, as the Patron of justice and goodness, who will judge men after death, and reward or punish them according to the merit or demerit of their actions. The rite of circumcision is performed upon males between the seventh and eighth year of their age; unless delayed in order that the company may be more numerous, and the ceremony have a greater degree of celebrity. The day of circumcision is solemnized in families with much joy and festivity, and concludes with the singular custom of firing from a musket the foreskin of the patient.

They believe also in a devil or evil being; and upon this article of their creed is founded the craft of the Panfaret or Magician, who being supposed to defeat, or control the machinations of the invisible enemy, practises a thousand tricks on the

114 VOYAGE TO THE SOUTH POLE.

credulity of the multitude; few Indians indeed of good sense give credit to the virtue of his enchantments; but the more ignorant and superstitious, who always compose the largest portion of the people, suffer themselves to be miserably duped by his fraud and imposition. Amulets of a species of wood, suspended round the neck, or preserved in a little bag, are supposed to secure the possessor against wounds and the disasters of war. A shrimp or toad, applied with words of incantation to the head of a person afflicted by disease, is expected to restore the patient to his wonted health. Exposing the sick in a hut of a certain elevation, open towards the east, from which is let fly an assemblage of party-coloured threads, is a sovereign remedy in the most desperate cases. A cure is sometimes effected by only painting the posts or pillars of the patient's house of different colours. Perfumes mix in abundance in all the arts and enchantments of the Magician. Madagascar, lastly, presents the traveller with many other absurd observances, of which it may be difficult to

trace

trace the origin, but which in general seem to be the barbarous vestiges of religious notions, indistinctly transmitted to the people from their Asiatic neighbours: the rite of circumcision, the common use of perfumes, and a profound veneration for the quarter of the East, are evidently the remains of religious systems of the highest antiquity.

But the most horrid part of their superstition consists in this. When an infant has the misfortune to drop into the world on a day esteemed unlucky, or of bad omen, by the Panfaret, he is exposed or suffered to die of want, or to be devoured by wild beasts. I never was an eye witness of this enormity; but have heard the existence of it asserted by so many persons of credit, that I am obliged to believe the practice to be but too frequent.

The natives are accustomed to hunt the whale all along their coast; and having been fortunate enough to strike him with the harpoon, they wait till his strength is nearly exhausted, when they haul him

towards the shore. The women, who by this time are assembled on the beach, raise songs of praise in honour of him who had the merit of giving the first wound. The chorus having withdrawn, the whale is dragged as near as possible to land, and surrounded by all the men of the village, when the publick orator advances, and having pronounced a long oration on the pre-eminence and excellent qualities of the fish, the whale is cut up, and affords an immediate repast to the company.

C H A P. XIV.

The Palavers, or Conferences, the Natives of Madagascar hold, even on the most trivial Occasion—Their Possessions—Arms—Mode of internal Defence—Military Operations—their Cruelty in War, and irreconcilable Hatred of their Enemies.

THE smallest matter of dispute which happens to occur between the natives of Madagascar and the Europeans, or, indeed, between Indians of different tribes, receives a formal discussion in the *palaver*, or council of the tribe. Here they affect to consider the subject before them, very minutely, in its origin and probable consequences. All the alliances, as well as disputes, that have at any time subsisted between them and the opposite party, are brought under review. Much time is spent in weighing the arguments of the speakers on both sides, and in general the sessions of the palaver are spun out to a very tedious length before they can come to a decision. Such are the mighty preten-

sions of the natives to talents for deliberation; pretensions which, were they as solid as they are vain and affected, would serve to discredit the account I have already given of their character. But the fact is, the inhabitants of Madagascar are a people of a weak intellect, and far from being qualified by a sound understanding to avail themselves of maxims, drawn from experience, in considering the contingencies of futurity. Besides, as the country is divided into many small and independent states, mutually disposed to humble and depress each other, the interests of any individual community are very much involved, insomuch that it is often difficult to say what is the line of conduct it ought in good policy to pursue. But their chief misfortune, as politicians and men of business, originates in the versatility of their own minds; things of a trivial nature, such as a small present advantage, are sufficient to unhinge their judgement, and to impede the execution of even their gravest resolves.

Property in this island consists of cattle, grain, and slaves of the same nation with

with their masters. Every person who has the misfortune to be made a prisoner of war, man, woman, or child, is reduced to the condition of slavery, and from that moment is regarded by his own kindred as an object of contempt.

Their arms consist of a shield, and the *sagay*, a species of lance, which they have the art of throwing with peculiar address. They are tolerably well provided with muskets, which they have purchased from the French, and in the management of which some of the natives are not unskilful. A few of the petty princes have obtained swivel guns from the same quarter, and I am told the Chief of Foulpoint is in condition to bring cannon into the field, affording an example of that infatuated avarice so notorious in the character of a French merchant.

The residence of the Chief is within a Fort or Stocade, consisting of three rows of large trees, fixed in the ground so close as almost to exclude the light. The outer row is about fifteen feet high, the next nine, and the last, or innermost at

least six. The three rows, having scarcely any space between them, form one compact mass of timbers, all mutually strengthening and supporting one another. They are fastened together at the top by a cross beam, stretching along a groove, common to all the stakes in the paling, and extending the whole breadth of the fort. The gate is extremely narrow, being intended to admit one person only in front; the door, composed of a number of small stakes, rolls at the top on a transverse axis, and is capable of being pulled up, and let down, in the manner of a portcullis, as occasion may require. A double door is not unfrequent, which is inclosed in a case or frame, consisting likewise of stakes. Their forts in general are nothing more than simple palisades, constructed in the form of an oblong square; though some of them have the advantage of bastions, and galleries, with openings, for the purpose of reconnoitering.

On the eve of war, the women, children, and cattle, retreat to the woods, and remain in concealment till the issue of the campaign.

paign. The village is then occupied only by the men, who, previously to an act of hostilities, sacrifice an ox. An Indian, distinguished for his eloquence, then rises, and makes a long harangue on the arrogance and injustice of the enemy; his countrymen meanwhile dipping their sagays in the blood of the victim. The carcase is now cut in pieces, with the skin, and distributed among the by-standers, who instantly begin to devour each man his allowance with a horrid voracity; a ceremony sufficiently descriptive of those ferocious sentiments with which they proceed to vindicate their rights, or avenge their wrongs. On this occasion a stranger must not presume to dip his lance in the blood, or to share in the warlike entertainment, unless he is the reputed ally of the tribe; but touching the point of his sagay with the point of theirs, ratifies his title to their alliance.

Their operations in the field are of a very desultory description, consisting chiefly in teasing and harrassing the enemy, or in attempting to surprise him, disadvantageously posted, in the night. If they have
reason

reason to imagine that the enemy is off his guard, or little prepared for the defence of his fort, they form a blockade round it, and endeavour by a *coup de main* to make the Chief a prisoner of war: should they have the good fortune to succeed, they plunder his village, drive off his cattle, and enslave his vassals; but seldom or never come to any thing like a regular engagement.

In situations where it is deemed sufficient to remain on the defensive, they shew considerable vigilance and address in the use of advanced posts, sentinels, and above all spies, who are constantly busy in reconnoitring the ground and motions of the enemy. An example of this sort fell under my observation at Mahanlevou. The Chief of that seigniory, hearing that disturbances were breaking out in the country, began to consult his safety, by demolishing such houses in the vicinity of his pallisade as obstructed his view. He fortified the mouth of his river by throwing up a mound of earth, and placing his fusileers in ambuscade in the ditch. On the top of the mound he laid a large plank of wood,
pierced

pierced like a hay rack, through the apertures of which they passed the barrels of their fire-locks. Heaps of grafs were so disposed in front of the work, as to make it difficult to discover this masked battery at the distance of a pistol shot; while those charged with its defence were wholly covered from the fire of the enemy. The Chief never gives audience to an Embassador, till he has been previously informed by his sentinels of the general nature and import of the embassy. Should the Embassador's instructions be deemed satisfactory, the Chief makes his appearance, and admits him to an interview at some distance from the fort. He comes up and accosts his Excellency with a noble, manly, and sedate mien; but on no occasion whatever does he permit him to enter the gate of his pallisade.

The natives of Madagascar are susceptible of very violent enmities, and sometimes execute on their devoted objects the most deliberate cruelties. I saw a Chief dressed in a necklace formed of the teeth of a rival whom he had slain in battle. A man of the same quality having captured a daughter and
cousin

cousin of an obnoxious neighbour, ordered them into his presence, and in cold blood, with a single stroke of his lance, killed the former, dismissing her companion to carry home the dismal news to the parent; and to assure him at the same time, that he, and every soul under his roof, should sooner or later experience his vengeance, in a similar manner.

I am doubtful, whether the sensibility natural to a man in an uncultivated or savage state, when greatly exasperated or provoked, with all the angry and unsocial passions in full possession of him, may not act as an incentive to the cruelty of his revenge. How often has the savage of America, from the impulse of natural goodness, welcomed me to his hut, and refreshed me with the wild animal, which, with the sweat of his brow, he had killed in the desert; while in the mean time the scalp of an enemy hung dangling round his neck, and imparted to his ordinary beverage a delicious flavour. The new Zelanders sates his appetite with the quivering limbs of a guest, who, from folly or ingratitude, rouses him into a paroxysm

of rage. The native of Madagascar, while he lives and associates with a stranger as with a brother, may with great composure be seen pulling out the teeth of a man whom he slew in his anger: these are the spoils which at once sooth his rage and adorn his person; nor can a more desirable object present itself to his senses, than the tears and anguish of those who were united by the most tender affection to the fortunes of his victim.

C H A P. XV.

Mode of giving and receiving Presents at Madagascar—The Licences in which the young Females indulge, arise from a Motive of Avarice—Chastity of the married Women—Observations on the Language of the Inhabitants.

THE customary use of presents is the same here as in India; it is the business of the inferior to make the first advance as well as the first present, but he always

always receives another in return. Upon our arrival in this bay, we spent some days in receiving compliments from the Chiefs of the adjacent villages. - They set off from the shore in their canoes, beating their *Gongs*, and seemed highly delighted with the honour of displaying the flag of France: in this manner they signified their satisfaction at seeing us on the coast; and as the main object of this visit was to solicit our alliance, they presented us with oxen, fowls, and fruit. They were escorted by a numerous retinue of armed Indians, who saluted us with many expressions of friendship; particularly by grounding their arms in the canoe. The Chief was likewise attended by his favourite wife, daughters, and nearest female relations, whom we were not unmindful to regale with fruit and strong liquors. We presented the Chief with a gun, and the ladies with a piece of muslin, saluting them at their departure with three rounds of cannon, to which they answered by repeated shouts of joy and exultation. The French flag had

had been flying at the villages ever since our first arrival in the bay; nor was any mark of attention and good will omitted on the part of the natives, that could excite similar sentiments in our minds. Having, however, a nice sensibility of character, if they could at any time guess from the nature or degree of our acknowledgements, that our feelings were not in unison with their own, they were apt to become suspicious or at best perfectly indifferent to our concerns. It was considered as our duty to make a present to the Chief, who always presides over the market, as often as we had occasion for a fresh supply of provisions. Our repairing to their villages for the purpose of providing for our wants, shewed our dependence on their friendship; an advantage to be purchased with a present; they, in their turn appearing on board to request a renewal of their alliance with the French, felt the propriety of proving themselves worthy of it by making presents in their turn; facts in perfect conformity to all the maxims of the East respecting the nature of presents.

The

The natives of Madagascar indulge in all the offices of hospitality; a virtue, which there is rather the result of a natural impulse of the heart, than the practice of any fixed and defined precept, such as founds the exercise of it in the nations of Asia. When travellers tell us, however, that in the Island of Madagascar, the offices of hospitality are carried to such a pitch of extravagance, as to make it customary for parents to prostitute their children to the embraces of strangers, they speak either from ignorance or from a desire of exciting astonishment in the reader. From a closer inspection of their manners, they might have found that the little regard shewn to chastity among that people, may be resolved into a covetous desire of parents, and a long acquaintance with the propensities of dissolute men. I was at much pains to examine into the grounds of this report; for had I found, as has been stated by some voyagers, that a parent made no difficulty to deliver up his daughter to the desires of every vagrant who happened to land upon the coast, I should then have in-

ferred

ferred that in this island an original sense of modesty and personal dignity made no part of the moral character of man. But what young woman, in any part of the globe, ever offered so strong an exception to the general character of the sex, as that, previously to example and early seduction, she would give herself up to a man she never saw before, and one widely differing from her own countrymen in complexion, language, and manners. Or can we figure to ourselves a race of men so vile and contemptible in their own eyes, as to feel themselves honoured by administering, in the persons of their own offspring, to the improper appetites of strangers. This tale therefore I place with confidence to the account of exaggeration, a figure but too incident to the narrations of travellers.

In endeavouring to resolve those equivocal appearances, which tend to mislead a superficial observer on this point, I remarked in the first place, that boys and girls are not only permitted to live together without the smallest restraint, but, from the earliest dawn of puberty, are prompted

by their parents, to the use of those powers with which nature has endowed them. It is easy to imagine that having once tasted the sweets of pleasure, they will be inticed, by opportunity and the influence of a warm climate, to a frequent repetition of the same enjoyment. Every thing they either hear or see, acts as a stimulus to passion; words and gestures; the most free and licentious, are sanctioned by custom, and mix in the ordinary commerce of life. The parent observes with satisfaction the effects of such education on the character of his child, and thence augurs every thing happy and prosperous to his family in time to come.

I speak, however, only of boys and girls; for married women are very little addicted to violate the nuptial engagement. A husband indeed may possess concubines or wives of a secondary order; but making allowance for this custom, by no means peculiar to them, I am inclined to believe there is much mutual fidelity between the sexes in a married state. The foreigners, who first visited this island in modern times, were

were Mahometans: they were followed by Europeans, particularly the French, who have been settled here as a colony for a considerable time; and both these races, with whom the natives early associated, to say no worse of them, were men of intriguing manners. The first were so from constitution and the license granted them by the genius of their religion; the second, from habit, and perhaps from an affectation of gallantry, and the love of the sex. Both, stimulated by the same desires, and favoured by the loose principles of education in the females, insinuated themselves into the company of the lower order of the people, whom by presents, and the hope of future gain, they easily made subservient to their views. A sort of prodigality, incident to the character of a seaman on shore, soon removed the scruples of the interested parents; and thus, by gradually extinguishing all sentiments of reserve between native and foreign avarice, triumphed in the end over every obstacle to illicit gratification. The Chiefs themselves, naturally jealous of Europeans, and not insensible to the

emoluments of prostitution, bred up their daughters in all the arts of the coquet, in order that they might obtain a preference in the eye of strangers. Besides the article of presents, the Chief, by means of his daughters, who act as spies on the sentiments and conduct of the paramour, obtains such intelligence as is sometimes conducive to his safety and independence. Thus the young ladies of Madagascar, habituated to intrigue, prompted by the political and pecuniary views of their parents, and captivated by the charm of some new ornament for their persons, cease to be reluctant to the wishes of their admirers.

Such, I am convinced, are the origin and progress of that want of modesty in the sex taken notice of by all travellers who have visited this island; a feature however, which, far from being the result of any natural sentiment, plainly arises, as in all similar cases, from depravity of manners. But extravagant as the natives are in their worship of the Paphian Goddess, I could not learn that any female ever makes the
first

first advances to a stranger. That there are women who hold out meretricious lures to the publick I have no doubt of; but such characters belong to a description of the sex by no means peculiar to this island.

I was not a little surpris'd that this great relaxation of manners had in no degree formed a union between the natives and the French. It should seem natural to imagine, that the habits of commerce with the sex would often connect the male and female by ties of mutual confidence and affection: certain it is, however, that no such attachment prevails. When a woman happens to conceive by a foreigner, she industriously procures abortion, by the application of certain drugs whose efficacy is well known to the natives: and this practice seems to be so universal, that I did not meet with a single Mulatto, or person of colour, in Madagascar; a country, which, from the usual course of things, might be expected to contain many thousands of this breed.

Should it be alledged, that in the above detail, by offending against the modesty of the sex, as well as of men devoted to the austere habits of the cloister, I have departed from those moral maxims which ought ever to prevail in the traveller's narrative, I have only to say in my justification, that if, besides presenting a faithful picture of human manners, with an analysis of character applicable to the natives of Madagascar, I have endeavoured to discredit such mistaken notions as would make the reality of moral distinctions contingent on habit and education, I hope I shall not only have credit for the purity of my motives, but be allowed to have served, in some degree, the cause of virtue and morality.

Relying on the authority of many persons who have visited the island of Otaheite, of which we have had reports similar to those of Madagascar, I would observe in the same view, that there too an interested principle produces the prostitution of the women. In the latter, the female places an implicit confidence in the honour
and

and liberality of her admirer; while in the former, she usually enters into a previous and formal bargain, or contract, for the use of her person, a circumstance which implies a still greater degree of selfishness and depravity. Again, if we may depend on the veracity of a native of Otaheite, whom I had frequent opportunities of conversing with at Paris, as well as the reports of various voyagers, who give testimony to the conjugal fidelity of the Otaheitan matrons, we shall be satisfied that the commerce between the sexes is nearly the same in Otaheite as in the island of Madagascar, and seems equally to spring from the same principles. Such also, with very little difference, are the manners in this respect of New Zealand, and Greenland; and all ought doubtless to be referred to a similar origin.

From facts, equally misunderstood, travellers seem to have been led to the common doctrine of cannibals; for I am convinced there is no race of savages on the face of the earth, who devour their fellow men in cool blood. The rage of war,

and an indignant sense of injustice and oppression, urge some Indian nations to eat the body of a dead enemy; but has not the fury and madness of fanaticism, on many occasions, acted with equal enormity?

In the language of Madagascar, which is by no means harsh or disagreeable to the ear, I perceived some of the same inflexions of voice which occur in that of the Philippine isles. It seems a compound of different languages, and contains many words borrowed from the Arabic and Portuguese. *Kabar*, for instance, signifies new, and *Ouagh*, the face, as well in Madagascar as in Arabia. *Palabra*, or Palaver, means speech or discourse in Portuguese, and discourse or council in the language of this island. The term *parole* might be used without any great impropriety to express council in our own tongue. *Parlement* and *parlementer*, the one signifying the place, and the other, as a term of war, the act of holding a council, are evidently derived from *parler*. But I cease enlarging on a country, the history of which is familiar

familiar to many of my readers, and return to the frigate.

C H A P. XVI.

*The two Vessels, having refitted, separate—
The larger one, in which the Author is,
sails for the Cape of Good Hope—Anchor-
age in Simon's Bay—Further Observations
on the natural History and Productions of
the Cape—Departure for Europe, and ar-
rival in Brest Road,*

THE strip of land, which lies west from the mouth of the river Emballe, is in latitude $15^{\circ} 27''$; and its longitude, as determined by an eclipse of the sun, observed on the 12th of March, $47^{\circ} 45''$.

Our people, who had been ill of the scurvy, were now in a state of convalescence; and as we were apprehensive lest longer delay might expose us to the malignant fevers of the country, we laid in a fresh stock of rice, beef, and poultry, and, on the 29th of March, began to fall down
the

the bay. We dispatched the Corvet to the isle of France, and made sail with the frigate for the Cape of Good Hope.

With all our diligence, however, to quit the coast of Madagascar, upon the first symptoms of feverish disorders, we were unable to clear the bay before the commencement of the rains; the consequence of which was that a number of the crew caught the fever of the season.

Nothing material occurred on the passage, except the discovery of some currents, in a west south west direction.

On the 29th of April, the appearance of some *Manches de velour*, or velvet sleeves, announced our approach to Needle Bank, which runs along the shore east from the Cape of Good Hope. The lead gave us 100 fathoms, on a bottom of fine white sand, mixed with some earth and shells. The 1st of May we saw the coast of Africa, when we had soundings of sixty fathoms on the same sand, mixed with black pebbles, and shells pointed like needles. The north wind barred our entrance to False Bay; but on the 5th in
the

the evening, after sailing a little south east, we dropped anchor; and came to moorings in Simon's Bay the day following.

The seeds of a fever we had imbibed in Antongil Bay, now shewed themselves in the mortality of many of the ship's company. I found, however, agreeably to what is above mentioned, that the bulk of the unfortunate sufferers had imprudently exposed themselves either to the rain or the heat of the sun. Happily, in many of our sick, the wholesome air of the Cape soon began to produce symptoms of recovery.

On this occasion I employed my time at the Cape, either in traversing the mountains; from which I used to return, very idly perhaps, loaded with plants, particularly onions in flower, wonderfully diversified in their species; or in the amusement of fishing, which I found extremely productive. In my excursions, I frequently saw a small species of stag, and a race of very large monkeys, named Bavian. The *Dacy*, a kind of rabbit, presented itself, basking in the sun, and often suffered me to

to approach within a small distance before he betook himself to his hole.

My ear was delighted with the sweet note of a small yellow bird like the Greenfinch; nor was I less pleased with the melody of another species of the same size, remarkable for his tail, which is at least eight inches in length.

There is a wonderful beauty and delicacy in the plumage of the Senegaly, or Sparrow of Senegal, which is named at the Cape, Red-bill. I saw likewise various species of the Colobris, one of the most elegant breeds of birds. It is said by the naturalist, that his feathers present us with all the beautiful colours of precious stones. He is a native of many different parts of the globe, Surinam, New Spain, Mexico, and other countries. Here too is a very handsome species of tufted Sparrow, whose feathers are spotted with black; and Partridges in great abundance. The Lion, Tiger, Zebra, Cascoat, one of the largest birds in the world, Ostrich, and Eagle, are all natives of this country, but are
seldom

seldom seen except in the interior regions of the continent.

The Elements at the Cape seem to vie with each other in administering to the wants of the inhabitants. Five or six sailors, who were fond of fishing, soon caught with the line enough to satisfy the whole crew; and the fish were in such plenty, that the men often hooked them in the belly, by only dangling the line carelessly in the water. They shewed me a kind of white fish, of a reddish tinge, with a large insect, which seemed to live and feed in his mouth. I caught a Thorn-back of a monstrous size, that having swallowed a fish at the hook, found himself unable to get rid of his prey.

On the 26th of June we set sail for Europe, but the wind, being in the north west, continued unfavourable till the 4th of July, when it went round to the south east, and we made a quick run towards the north.

On the 14th we got to the $20^{\circ} 24'$ southern latitude, and $51''$ eastern longitude; where 100 pounds of sea water gave

3 lb. $\frac{1}{2}$ of salt. The 23d we saw the island of Ascension, but in spite of the temptation of its Turtle we continued our course. On the 28th we crossed the Line under the 19° of western longitude. On the 3d and 4th of August we spoke with vessels, bound from New England for the whale fishery on the coast of Africa, who told us they had lost sight of the Cape de Verd islands three days. The wind continued in the north east till the 26th, when we found ourselves in 26° north latitude, and 44° west longitude. The west winds, which are extremely prevalent in those parts, carried us rapidly eastward. On the 7th of September we arrived in the Sound off the coast of Brittany, and next day dropped anchor in the road of Brest.

A
V O Y A G E
TOWARDS THE NORTH POLE,
IN THE YEAR 1776.

C H A P. XVII.

Considerations on the Diversity of the Climates, situated under equal Latitudes, towards the two Poles—The probable Causes of this singular Difference—The Climates which are the least uniform, with Respect to Heat and Cold, are the most stormy—The Author, with a View to many useful Objects, determines to penetrate as far as possible towards each Pole, and embarks accordingly at Toulon.

HAVING in former voyages visited many parts of the terraqueous globe in different latitudes, I had opportunities of acquiring a considerable knowledge of climate in the torrid as well as in the temperate divisions of the earth; in a subsequent voyage,

voyage, I made it my business to be equally well informed respecting the reputed inhospitable genius of the South Seas; and upon my return from that expedition, which extended beyond the ordinary tract of navigators, three hundred leagues directly south, and consisted in all of more than a thousand leagues, performed in three months, in the mildest season of the year, I entertained not the smallest doubt, that there exists a peculiar and perpetual rigor in the southern hemisphere.

Surprised as I was at so great a disparity of climate in corresponding latitudes towards the two poles, I had a strong desire to be enabled to give some account of this extraordinary phenomenon in the constitution of the globe. Northward, I observed a sea of very great extent, in whose high latitudes one would naturally expect angry and tempestuous climates; but it should seem that the ice, extending over a great proportion of its surface, qualifies, from the quiescent state of its own atmosphere, the asperity of the elements in these frozen regions. I should therefore refer the intemperate
con-

stitution of southern climates to the prodigious extent of an almost unbounded ocean, which intirely absorbs the solar rays; and this opinion derives considerable credibility from the report of mariners, who sail between Manilla and Acapulco, a sea in length and breadth next to the southern ocean, the most extensive on the globe. They tell us, that this sea is subject to very high and tempestuous winds; and that on the confines of the American shore, though they seldom sail into a higher latitude than forty degrees, they often fall in with floating ice, sea-wolves, and white bears, appearances which are strong indications of a rude and inhospitable atmosphere. I then considered the difference of climate under similar latitudes in the Atlantic, particularly on the coasts of Europe and America. The latter, compared with the continent of Europe, is of narrow limits; it contains vast lakes, is overspread by extensive forests, and presents to the rays of the sun a surface equally vacillating and unstable with that of the ocean. Europe, on the contrary, is of very large extent: all of it, in some degree

of improvement, receives the united influences of the great continent, and as it confines and hems in the north seas, by many considerable islands, is in every respect better formed for reflecting the solar rays. Hence in the climates of Great-Britain and Germany we find scarcely any thing analogous to the incessant fogs and boisterous winds of the Labradore coast, and south cape of Greenland.

Thus I observed, that in parallel latitudes, the South Sea being of vastly greater extent, embracing almost the whole circumference of the globe, is likewise much more stormy and tempestuous than the Pacific Ocean; that the latter being of larger bounds is also more tempestuous and turbulent than the Atlantic; whilst the Atlantic is more rough and ferocious towards the narrow and wild country of America, than towards the vast and improved continent of Europe.

In my excursions round the world, I made some remarks on the varieties incident to the torrid zone; and shall observe in general, that from one pole to another the climate, in proportion as it is uniform

or

or fluctuating in temperature, is more or less infested with abrupt and impetuous winds. To be satisfied of the truth of this observation, we have only to mark what passes on the cold extremities of the temperate zones. There the hoar frost, generated on the spot, or wafted thither from colder regions in their vicinity, is converted into vapour by a sudden encrease of the heat of the atmosphere; and such vicissitudes of temperature, happening in quick succession, give occasion to violence, and a sort of caprice, in the operations of the winds. The opposite extremities of the same zones, which border on the torrid, share in the more uniform tenour of that division of the globe. The frozen zones, being for ever in a very low temperature, with little variety of heat and cold, are but seldom troubled with high winds; in them the energies of nature may be said to be in a constant state of comparative repose, and are consequently less liable to any violent fermentation than in the temperate zones. In the torrid, on the contrary,

nature seems to keep the elements in an unvaried state of vigor and activity.

The more I revolved these ideas in my mind, the more anxiously I courted an opportunity of ascertaining their veracity with my own eyes. I wished to survey the climates in the vicinity of the pole, in their whole extent north and south, to compare them, and to contrast their peculiarities with those of the torrid zone, all round the globe; for the accomplishment of which purposes, there was now but little wanting, except a voyage to the north seas. As I wished likewise to bring under one view the various obstacles arising from the ice, which have impeded the researches of navigators in those seas, I was prepared to continue my voyage northward to as high a latitude as possible; and having heard of no navigator whatever, who had taken the smallest notice of the different expedients that might be opposed to the difficulties of the ice, by such as would penetrate to the pole, I was much inclined to think I should be able to supply this defect in the

annals of navigation. Intending to direct my course towards the north and west of Spitzberg, and, piercing through the ice beyond 80° . of latitude, to traverse that region which is a kind of deposit or magazine, whence arise the numberless shoals that are seen floating towards Iceland, and the coast of America, I hoped also to be able to say, from my own observation, whether any land actually exists northward from the coast of Greenland; and in fine to consult the gratification of a private curiosity, by attending to such objects of natural history, as might fall in my way, particularly the native animals of those seas.

Being on board a frigate at Toulon, which was under sailing orders for the port of Brest, I made application to the minister of my department for leave of absence, and entered directly upon the execution of my enterprize. This passage afforded me an opportunity of visiting Gibraltar, a very strong and important fortress, in which the art of man has only improved upon nature, in supplying the little that was

150 VOYAGE TO THE NORTH POLE.

requisite for the completion of her bold design. On my arrival at Brest, I had the pleasure to meet the minister's approbation of my intended voyage, and prepared to proceed to Holland, where I had no doubt I should find a ship destined for the North Seas.

C H A P. XVIII.

Voyage from Brest to the Downs—Passage thence to Calais—Journey, by the Canals of Flanders, the Meuse, and Holland, to Amsterdam—Comparison between Austrian Flanders and Holland, with Reflections on the latter Country, and the Character of its Inhabitants.

HAVING departed the 11th of March, I arrived at Cancalle the 16th, and resumed my voyage the 18th, on board a vessel bound for the river Thames. We steered between the islands Jersey and Guernsey, then between the Stark and Aran, and

VOYAGE TO THE NORTH POLE. 181

and afterwards between Alderney and the coast of Normandy. In this course the Light house on the Caskets was of very great use to us; but we now made a tack towards the coast of England, it being less incumbered with rocks than the French shore. The serene aspect of the sea and sky, in a season but little advanced, produced an agreeable surprise; an Indian canoe might have accomplished the navigation with all safety.

On the 21st, we passed Dover castle, and the East point of England. The Lighthouses on two strips of land, called North and South Foreland, are of equal benefit to commerce and the interests of humanity; such objects of national police seem to be under better regulations in this island than in the kingdom of France. We now anchored in the Downs, where we met a considerable fleet of merchant ships waiting an Easterly wind to fall down the Channel. I disembarked at a small open town, named Deal, standing on a flat, between two ancient castles, of little moment for national defence; but finding no opportunity at

this place of crossing to Holland, the third day after my arrival, I set out for Dover. Having been accustomed to consider the climate of this country much colder than that of France, I was astonished at the mildness of the air, the charming verdure of the fields, the trees in blossom, and the spring in general in a more forward state than I had left it in my own country. Dover properly consists of two towns, both situated in a bottom, and is overlooked by very high cliffs, whence I should suppose it not favoured by a very wholesome atmosphere. North from the harbour stands a castle, commanding the town and sea-shore; a fortress, which seems of at least equal antiquity with those of Deal, but much more considerable in point of strength. My time was too short in England to enable me to form an opinion of the national character; but I readily presume there is a great difference in urbanity of manners between the natives in the inland country, and such as a stranger meets with in the maritime parts of the island.

I landed

I landed in the harbour of Calais the 24th, and proceeded to Holland by the Flemish canals, a route which afforded me a sight of Greveline, Dunkirk, Newport, Bruges, and Ecluse; and sailing along that arm of the sea which borders on Zeland, and the canals of the Meuse and Holland, I saw Flushing, Middleburgh, Vellumstand, Dort, Rotterdam, Delf, and Leyden, and on the 2d of April reached the city of Amsterdam.

I should prefer the quiet and easy condition of the Fleming to the restless toil and bustle of the Hollander. The country of the latter, however, offers to the eye of the traveller, numberless canals of great capacity and magnificence; many fine towns almost afloat; country seats; parks and gardens in which a taste for expence and elegance is equally conspicuous; and sea dikes, the extent, solidity, and elevation of which, mark a spirit of the most daring as well as judicious enterprize. One is indeed astonished at the incredible labour employed by these creators of their country; first in wresting it from the waves, then
in

in improving and embellishing it, and, last of all, in defending its boundaries against the irruptions of the ocean. But after all, what are the Dutch but a race of illustrious exiles, in a manner bound to the sands of the sea. My eyes were constantly abroad in admiration, but my heart was silent. On one side lie fields, which, having been deluged by a sudden inroad of the sea, require all the art and industry of man to restore even to the condition of a morass. On the other, multitudes of machines appear in constant operation to empty the flood into an adjacent canal; but a storm arises, and the whole is annihilated in a moment. The application of windmills to almost every species of manual industry, I regard as a certain proof that with all the ground recovered from the sea, at such an amazing expence of labour and anxiety, the soil is by no means equal to the maintenance of the inhabitants. Their cities, which are erected on piles, scarcely able to sustain their burthen, seem in constant jeopardy of dissolving in the waters. The dikes constructed as barriers against the ocean, as well as others in the inland country,

country, are undermined, or suddenly swept away by the ravages of the sea, or the violence of a river, which commit alternate devastation in the provinces. The air itself, of an insalubrious quality, seems to forbid man to occupy a country, which nature never intended for his use. In the great towns, the traveller meets with some handsome buildings; a commerce which aggrandises a few lofty individuals; shipping, the size and number of which denote the extensive speculations of their owners. But the houses in town and country are deserted by the poorer sort; a race of men who may be said to submit to perpetual exile, and all the perils of the ocean, in earning a little pittance for their families, the hovel they live in, a few roots, and a small portion of rye for their subsistence; men, in short, the sweat of whose brows, whose strength and life itself, often fall a sacrifice to the ease and convenience of the rich. I can think of nothing to which Holland may more properly be compared, than a tract of country that has been undermined, and almost floated by the ocean; but

but which retaining a varnish of green turf, incorporated with the adjacent soil, and bound together by the roots of its own productions, is preserved for a while from final dissolution. Such vegetables as are unable to extend their fibres to the solid ground, perish; but as they decay become soil for others. If a tree happens to spring up, the tender roots will sustain it a little; but should it thrive and increase in size, the thin soil which serves it as a base gradually gives way, and the tree falls to the ground. The Dutch appear to possess a certain serenity of mind; they have some good qualities, are a little roguish and covetous of money, but generally in the style of honest people.

C H A P.

C H A P. XIX.

The Author embarks in the Texel for Spitzberg—Passage through the German Ocean to the East of Norway—New Experiments on Sea-water—And Reflections on the Mode of living of the Norwegians and Inhabitants of Greenland.

I Remained in Holland only three weeks; the merchants, to whom I had letters of recommendation, assisting me with their good offices, I found a ship bound for the seas of Spitzberg, and sailed from the Texel on the 16th of April, 1776. We fell down the river by the southern passage, which is esteemed the safest, and is formed by the coast and sand banks, which extend two leagues into the sea. We then stood N. $\frac{1}{4}$ N. W. across the German ocean, which has soundings in its whole extent as far as the Etland islands. The Sound, however, is very irregular, owing to frequent sand banks, which afford plentiful fisheries to the inhabitants of the sea coast. Of these sands, the most considerable is
the

158 VOYAGE TO THE NORTH POLE.

the Dogger-bank, which runs N. E. and W. S. W. nearly in the form of a projection of the cone, having the base towards the west south west. Its mean breadth is fourteen leagues, and its center is in latitude $55^{\circ} 5''$. Its most westerly point is fifteen leagues from the English coast, and its most easterly twenty-four from the coast of Jutland. Such parts of the Bank, as lie south, and south west, have the least depth of water, it being only from nine to eighteen fathoms; while east and north the Sound has from twenty to thirty fathoms; without its southern extremities the lead gives twenty-five, and without its northern, forty or forty-five fathoms. On the 17th we arrived in the latitude of 55° and $31''$ of eastern longitude from the meridian of Paris; the variation of the needle being 18° towards the north west. Two leagues south from the above point of latitude we had sixteen fathoms; but now, at seven in the evening, having sailed ten leagues N. $\frac{1}{2}$ N. W. from the same point, the lead gave us twenty-four. Two days after, being five leagues south of $57^{\circ} 31''$ latitude

bedgiew 1

and

and $21''$ eastern longitude, we had 50 fathoms; and ten leagues N. $\frac{1}{4}$ N. W. from this second point, our soundings were forty five fathoms. The currents here, as well as along the adjacent main land, run northward; but on the coast east from Scotland, and at the Shetland isles, their direction is towards the south.

On the 20th, in latitude $59^{\circ} 4''$ the lead gave sixty-five fathoms soundings, which we retained all the way to the latitude of 61° . We coasted along the Shetland islands, but the weather was hazy and we passed without observing them. The water is much deeper off the coast of Norway; but navigators give a preference to this route, because in case of a westerly wind, which is much more common than a wind at east, the ship can easily run into a greater depth of water. The distance betwixt the two coasts is about forty-five leagues.

I practised the same experiments in my progress north, that I had made towards the other extremity of the globe, and in the latitude of $64^{\circ} 30''$ and $2''$ eastern longitude,

I weighed

160 VOYAGE TO THE NORTH POLE.

I weighed 100 pounds of sea-water, and found that it contained $4\frac{1}{2}$ pounds of salt. In latitude $59^{\circ} 8''$, and longitude $35''$ the same quantity of water gave only $3\frac{1}{2}$ pounds of salt; but at that time we were still within the limits of the German ocean. We spoke with two vessels on their passage from Drontheim. The trade of Norway consists chiefly of stockfish, train-oil, and copper. In the northern part of this province the climate is too cold to raise corn equal to the subsistence of the inhabitants, and hence they as well as their cattle, have been forced to have recourse to fish as the chief means of their support; the same is the unhappy lot of the Greenlanders and the natives of Iceland; the latter, by far the most miserable of the three, derive no advantage whatever from their soil, and are indebted for both clothes and lodging to the skin of the sea-wolf. A stranger is astonished at the avidity with which the Greenlander swallows his whale and seal oil. When there is a scarcity of drifted trees, he may be seen dressing his fish and warming his fingers

fingers at a wretched fire of matches kept burning with train oil.

On the 23d, our latitude being $66^{\circ} 27''$ with one degree $48''$ of longitude, a bubbling appearance on the surface of the water admonished us of currents, the direction of which we found to be towards the north. We saw a species of sea fowl called Malmoque; it snowed in large fleaks, and Reaumur's thermometer stood a fraction above 4° . The cold, as well as the aspect of the skies, was much the same as in the South Seas; but there is one material difference between the two climates, and it is this, that here the weather being almost quite calm the cold is uniform, whereas in the south, being introduced by high winds, it is capricious and irregular; besides, the season was greatly more advanced in the latter than in the former climate.

On the 26th, we ceased to have the return of night; I read easily at 12'o clock P. M. without the light of a candle, and could distinguish objects at the distance of three leagues from the ship; meanwhile

162 VOYAGE TO THE NORTH POLE.

our latitude was $68^{\circ} 6''$ of declination, and consequently the sun was 8° below the horizon.

C H A P. XX.

The north Cape of the great Continent is passed, and Islands of Ice encountered—These large Bodies are the probable Cause of a great and sudden Change in the Weather, which now becomes remarkably serene—The curious Appearances the Ice exhibits; and the Manner of navigating through the little Channels it forms.

ON the 30th, we shot north of the Cape of the great continent on which voyagers have engraved the following inscription. *Hic stetimus nobis ubi desuit Orbis.* “Here ends our voyage where “the world fails us”. The mercury remained three days constantly below frost; we had unremitting snow, which, being generated in very cold regions, fell not in the ordinary form of fleaks, but in that of thin scales, small stars, or like the down

of the caterpillar. Sometimes the weather was fine, and this very day, though the thermometer stood in the shade, a little more than one degree below frost, when exposed to the sun in a window sheltered from the wind, it rose to 25° : the ice, however, did not melt in the smallest degree on deck. The sky was much more beautiful than in the south, though the cold was actually more intense, but without the same trouble and disagreeable sensation.

The 2d of May, the wind blew fresh from the south east, and this was only the second instance since we sailed of a fresh wind, which on both occasions came from the quarter of the south; the cold was extremely piercing, though the mercury was 3° only below frost. The water, dashed over our heads by a strong wind, froze on the deck and rigging; while the sea formed a kind of hoop about the sides of the vessel, consisting of an incrustation three inches in thickness. Nevertheless I was surprized to find a climate in so high a latitude so little subject to violent winds. Next day we crossed the $77^{\circ} 14''$ of

observed latitude, our longitude being $3^{\circ} 12''$ east; and the variation of the needle 19° towards the north west; a direction it retained the whole of the voyage.

We were overtaken by the above high winds in a very unseasonable moment; for at five o'clock in the morning of the 30th of May, having reached the ice, we had rather precipitately pressed the ship among the shoals. It is very unadvisable however to enter the ice if it can be avoided, with a high wind, since not having it in your power to moor, you are obliged to keep under sail, conscious that the violent strokes received from the shoals may be attended with the most serious consequences.

I observed with some surprize, that in proportion as we advanced into the ice, the winds moderated and the heavens increased in serenity and beauty; infomuch, that while we enjoyed the finest weather in the world, I saw at the horizon, the region we had but lately quitted dark and probably embroiled with a strong gale. I cannot consider this sudden change of weather

as the effect of accident, but rather as arising from the physical constitution of the Frozen Zone; a point which I examined afterwards with considerable attention, as will be seen in its place. The mercury rose in the sun to 23° , and fell in the shade to 2° below frost.

At three o'clock in the afternoon, we discovered the snowy mountains on the bays of Clock and Havrisound; the first, in the N. E. and the other in the E. $\frac{1}{4}$ S. E. at the distance of sixteen leagues. These mountains are situated northward from their respective bays. The mountains of Clock may be distinguished by their superior magnitude and lofty crests, which sustain a number of summits rising to a point. Spitzberg, as I am told, signifies a conical topped mountain, and is derived from the great frequency of this appearance in that country.

The south wind having drifted the shoals back from the open sea in great quantities, our present navigation became somewhat embarrassing; the greatest distance between the shoals, as far as I could see, did not

exceed one cable's length, and this interval was commonly occupied by an icy wreck. The shoals indeed were not very extensive, none of them appearing more than two hundred yards in length; a circumstance which is owing to their having been broken by concussion in their passage from the west coast of Nova Zembla and the Straits of Nassau.

Thus far, however, our navigation had received little interruption; but being now in a very high latitude, we met with multitudes of shoals, which sometimes united by a sort of snowy cement, and presented the appearance of an extensive coast. The coasts of ice, which are very common in some parts of those seas, are separated by a channel often barely large enough to admit the vessel, and generally terminate in a kind of bay. Some of these large masses appear stationary, projecting in Capes and Promontories, while others drift freely with the current.

The little noise and bustle occasioned in navigating the ship, the tranquillity of a frozen sea, and the stilness of an unruffled atmosphere,

atmosphere, diffuse a mournful silence over the face of those snowy regions; a silence which is only interrupted by the cries of the Retchis, as she flits from one shoal to another, or by the undulations of the water in the crevices and cavities of the ice. Whoever has surveyed the aspect of a country merged in the floods of winter, and presenting every prominent feature tipped with snow, can form to himself a pretty adequate notion of the landscape now in my eye. The hedges, trees, houses, hamlets, even to the walls of the cloister, are all faithfully delineated on the surface of this extensive shoal.

The management of the rudder now became an object of anxious solicitude. The captain, taking his place at the mast head, made it his business to descry from a distance the most navigable channel, while two pilots stationed in the shrouds, one on each side of the ship, gave notice to the helmsman how he might avoid the adjacent shoals. The seamen arranged themselves abaft, and endeavoured to facilitate the ship's progress by means of

M 4 poles,

poles, at least twenty feet long, with which they either sunk or dislodged the larger fragments. Sometimes a strip of ice, of moderate size and thickness, intercepting our navigation, we charged it with resolution; and the momentum of the vessel bore down all resistance. Sometimes steering parallel and close to the shoals, we brushed away innumerable beautiful cristalizations that projected from their sides. If the Channel, as it sometimes happens, terminated in an Isthmus of recent ice, we set with some advantage our sails, and the ship, with the assistance of the seamen, who broke the ice before her, forced her way into an adjoining channel. If we could discover no possible means of persevering in a direct line, but observed on one side of us a navigable channel, from which we were excluded only by a piece of practicable ice, deadening the ship's motion by backing the sails, we came up to it at an articulation of the shoal, when the leeward side of the vessel, bursting the snowy cement, opened a passage into a new route; and then setting our sails,

sails, we again recovered the wind, and continued our voyage. The shocks we sustained in such situations were to me very alarming; and I was not a little surprized at the phlegm and indifference of my patient Dutchman under all the circumstances of these violent efforts. The ship was low rigged, very strong, and in every respect constructed for the present service; had her masts been equally tall with those of ordinary shipping, they would, I have no doubt, on several occasions have been carried over the side. It was particularly the business of the crew to protect the stern, as it is by no means equally strong with the head, and consequently more liable to receive damage from the impulse or resistance of the ice.

C H A P. XXI.

The Passage towards the North is completely blocked up by the Ice, and another one sought—Manner of anchoring on an Island of Ice—Natural History of the Sea Unicorn and Sword-fish—The Vessel is completely enclosed by the Ice, which renders the Navigation impracticable—By the Exertions of the Crew this Difficulty is obviated.

ON the 4th at nine o'clock in the morning, the passage northward seemed completely shut up. We stood east and west in quest of another channel in the same direction; and at eleven, hitting upon a place where the ice appeared weak, we forced our way in the manner already described. It was ten in the evening, however, before we began to make a progress towards the north. The channel seemed universally closed, and the shoals too long and compact to be parted, or set in motion by any manœuvre of the ship. Meanwhile

we

we cruized about in search of an opening, tacking, or suffering ourselves to be drifted, according as room was afforded us in the ice: but not an inch of water was visible in the quarter of the north; all in that direction was one snowy surface, consisting of shoals lately cemented by the freezing of the intermediate channel. The sudden freezing of sea-water, as related by voyagers, now ceased to be an object of my astonishment; for while the mercury stood at 3° , and sometimes only 2° , below frost, the sea, in spite of the ship's motion, froze fast around her, incircling her with an encrustation of ice. Perhaps the tranquillity of the water may favour the congelation of its surface. We gained a little west north west, and north west; but the weather setting in hazy, and we being under the necessity of shifting our course with much caution and foresight, it was thought prudent to moor upon a bank, and wait the opening of the ice towards the north.

The manner of anchoring on the ice is simple, and being well known to all who navigate those seas, it seems unnecessary to

172 VOYAGE TO THE NORTH POLE.

detain the reader by any minute detail of the process. A party of the crew set off in a boat with a pick axe, a shovel, and a crow in the form of an S; the sailors, having got upon the bank, clear away the snow, and, making a hole in the ice, hook it with one claw of that instrument; in the meantime the vessel comes to windward, with the ice under her bow, and throws out a rope, which is made fast to the S, when the ship begins to drift like an appendage of the shoal. This operation is very much the same, whether the ice is an island and in motion, or a bank and apparently at rest; only in this last case it is proper to be extremely watchful of the changes so incident to those large masses. Here the currents bear towards the north, with considerable rapidity; but as our island drifted somewhat eastwardly, we shifted the crow to another, whose direction was north west. We saw many whales, of which we were fortunate enough to take three; but as the northern whale is of a smaller size, than that more to the west, I reserve any

any observations I have to make on this animal for a future occasion.

We saw likewise numbers of the Sea Unicorn, an animal which is but seldom seen on this side of 80° latitude. The Unicorn seems to be the friend and companion of the whale, for they commonly appear nearly in the same place. The one and the other respire or blow at the surface of the water. A Unicorn of the largest size measures fifteen feet in length, is of a grey colour mixed with black, and sometimes tiger spotted; his head is not large and conical like that of the whale, but rather small and round like that of the Sea Cow. The snout of the male sends off an horizontal tooth or horn, six or seven feet in length, which at the base is about the thickness of a man's leg, while at the opposite extremity it scarcely exceeds that of a finger. The horn has all the lustre and solidity of polished ivory, and on the surface are gutters running in spiral lines.

The Sword-fish is also seen at times among the ice, though he but rarely descends so far from the more frigid regions of

of the pole. He is from twenty three to twenty-five feet long, and of a black colour; the sword rises perpendicular from his back, and measures four feet in length, with the concave edge towards the tail.

As the Unicorn is the friend, so the Sword Fish is the deadly enemy of the Whale, to whom he gives battle in a troop, headed by a leader who is always longer in size than his followers. I have seen the Whale pursued, and swimming before the Sword Fish with all his speed; and in some of those we caught, were found wounds inflicted by the sabre of that warlike animal.

In the meantime, the ice having opened, we had drifted considerably northward, insomuch that on the 7th we were in $79^{\circ} 23''$ latitude and in longitude $4^{\circ} 10''$ east; the variation of the needle 14° . The same day, however, the shoals returned, and began to close in all around us, leaving only here and there a small pool of water, formed by the salient angles of the ice. The crew descended upon the ice, and partly by towing the ship, and partly by pushing forward the shoals, through which we were desirous

desirous to pass, endeavoured to free us from our present confinement; but a dead calm depriving us of the use of our sails, our utmost exertions were intirely ineffectual.

We were at leisure to contemplate a most beautiful sky without the slightest breath of wind; the mercury rose in the sun from 2° below frost, to 28° ; at eleven the evening before, it had mounted to 20° .

On the 10th the ship was locked in by the shoals; every fluid spot disappeared, leaving us the dismal prospect of one extended mass of ice. Our best observations placed us now in a latitude of 81° . The shoals having been carried east and north east by the current, often remain here for a long time. The whole expanse of the horizon, except one dark speck in the south, appeared white from the reflection of the snow, a circumstance which seemed to warn us that the sea was in the same impenetrable state to a great extent. The wind was westerly; the ice, though every where so close as to prevent the passage

sage of a canoe, was, however, not very compact; and apprehending lest a strong frost setting in might cement together the shoals, and render every means of escape impracticable, we resolved instantly to attempt the recovery of our liberty. To one as inexperienced as myself, our situation would have appeared already without hope, but my companions, confiding in their own skill and resources, were differently affected, and went boldly to attack the ice, where it seemed to be susceptible of the smallest resistance. We hoisted our sails opposite to the place we meant to penetrate; a part of the crew stationed on each side of the vessel pushed against her in order to widen the channel, while the men on board propelled her by pushing away the ice at her stern. The united force of the wind, capstern, and poles, producing a violent compression in the circumjacent shoals, the ship got into motion, entering progressively into places which but a little before were incapable of containing our smallest boat. This more than Herculean labour lasted all the 11th and 12th, when we

we at last conducted the ship into a region of navigable channels, or at least only incommoded with such recent ice as was unable to obstruct our navigation.

C H A P. XXII.

Description of the Varieties of Ice encountered on this Voyage—Reasons why the British Ships which prosecuted northern Discoveries in 1773, did not succeed in penetrating farther towards the Pole—The Author conjectures that a Voyage to the Pole itself is not impossible, and supports his Hypothesis by Reasonings.

THE ice from its various modifications is named isicle, ice, ice bank and island or mountain of ice. The isicle implies chips or small ice produced from friction or pressure; ice, large fragments from four to a thousand feet in length; ice bank, an assemblage of shoals consolidated by the frost, and measuring from six to seven leagues in extent; the islands or moun-

tains of ice cannot be said to be very extensive, but they are extremely high above the base, drawing sometimes upwards of twenty fathoms water. They are generated in the large bays and rivers of North America; nor are they even met with in these seas. The highest ice I observed at any time on this voyage, did not exceed thirty or thirty five feet above the level of the sea. On the 11th, our latitude was $80^{\circ} 38'$, longitude $4^{\circ} 25''$; the variation of the needle 14° . We took the advantage of a fair wind, and the opening of the ice, to stand south: and on the 14th came in view of the Devil's Cape, which forms the north west point of Spitzberg. Next day the wind went round to the south, and we were obliged to keep upon a tack which carried us at times within a league of the land; the variation of the needle was only 10° .

Owing to the violent winds, prevalent in the quarter of Spitzberg, the promontory in which the land terminates has been named Cape de Diable. North north east, and north east from the Cape, the country

country falls away towards the isle of Moffin, and the coast of Renneveld. Probably these boisterous winds do not extend so far to the east; for the sky in that quarter appeared serene, and the mountains in beautiful sunshine, while we were buffeted about under a most dismal atmosphere.

To work the ship, circumstanced as we now were, was a matter of the greatest nicety; but were not at liberty to charge the ice as we had done on former occasions, since in a motion highly accelerated by the wind, the vessel might have received irreparable damage from the shocks, and yet we chose to keep under some sail, rather than to moor upon ice, which drifted so rapidly with the current. West from Spitzberg the currents bear northward; but at the north west point, meeting with land, which slopes towards the east, they take a course north east and east.

The sea was now become much more open than formerly; a fresh wind at south, having set in, had chased the shoals towards the north, while the currents, in concert

with the wind, had drifted us considerably in the same direction. On the 15th, being north north east from Gelofdeclip island, we saw the mountains which compose the boundaries of the plains of Renneveld. Here the magnetical variation is only five degrees towards the north west; at the bay of Renneveld the variation ceases; a little further eastward it is renewed, but there the variation is towards the north east. The plain of Renneveld, as well as the island of Moffin, lies too low to be observed at any considerable distance.

I saw a very large species of sea lion as he crawled from one shoal to another, or came to take air at the surface. This animal is from eight to ten feet long, and nearly of the same shape with the sea wolf. Nature has furnished him for his defence with a couple of large tusks at each side of the mouth, fastened in the upper and lower jaws. In his native element he is bold and irascible, insomuch that when enraged by the loss of one of his companions, his eyes glistened, and he set upon the canoe with his teeth; he is nevertheless cowardly

cowardly on shore; and tho' he frets and growls at such as molest him, presumes not to act on the offensive but when pushed to extremity.

Nearly in the situation in which we now were, the British vessels, which sailed in the year 1773, for the purpose of making discoveries in the north seas, after having been locked in for some time, terminated their expedition. It is pretended by some of our sailors, who were spectators of their misfortunes, that they arrived too late in the season, and were not apprized of the currents which drifted them to the north east of the Devil's Cape. Be this as it may, finding themselves caught by the shoals which accumulate here in vast quantities, and the season being greatly advanced, they were much alarmed, and began to look around them in despair. One of the crews actually quitted the ship, and were making the best of their way to a greenlandman at some distance, when turning round they observed the vessel afloat in the ice which had opened spontaneously, and they returned on board.

182 VOYAGE TO THE NORTH POLE.

Our sailors, who were accustomed to this navigation, appeared astonished at the continuance of the south wind in April and May; since in these months north and north east winds are in general the most prevalent. On the 16th it blew with considerable force, when yielding to the joint impulse of the wind and currents, we soon found ourselves north of 81° of latitude. In this very high latitude, I saw, with some surprize, the sea very considerably open and freed from the shoals.

We were now less than a hundred and eighty leagues from the pole, and the idea of so small a distance served effectually to awaken my curiosity. Had I been able to inspire my fellow voyagers with sentiments similar to my own, the winds and currents which at this moment carried us fast towards the pole, a region hitherto deemed inaccessible to the eye of mortals, would have been saluted with acclamations of joy. This quarter, however, is not the most eligible for such an enterprize; here the sea lying in the vicinity of those banks of ice, so frequent a little farther to the

the west, is much too confined. Nevertheless, when I consider the very changeable nature of the shoals, under whatever form, even in their most crowded and compact state; their constant changes and concussions which break and detach them from each other, and the various expedients that may be employed by the navigator for freeing the ship from confinement, as well as for obviating impending danger, I am far from viewing a voyage to the pole as a chimerical idea. At the same time, he who undertakes it, ought to be patient under many hardships, inured to bodily fatigue, and particularly skilful in the practical navigation among the ice. My own experience of the dangers and difficulties incident to the navigation of frozen seas, as well as of the means by which they were surmounted, suffices at least to give an air of practicability to my hypothesis.

C H A P. XXIII.

The Russians are of all others the least calculated to prosecute Discoveries towards the North Pole—Sea-Water is freed of its Salt by intense cold—At particular Seasons, towards the North Pole, it assumes a blackish Hue—Observations made with the Barometer, by which it would appear that Ice in large Bodies forms an Atmosphere of its own—Description of the Island of Amsterdam.

SUCH is the navigable state of the ice in the months of April and May, that ships arrive at the island of Jean Mayen so early as the end of March, the season when rivers and harbours are still frozen to a great depth, whence I infer that Russia is the nation least in condition to make voyages of discovery in the region of the pole. The circumstances of the Siberian Sea, shut up towards the south, and greatly confined to the east and west of Nova Zembla and the land of Tchuschis,

united to my experience in the course of this voyage, induce me to conceive, that there is no very practicable sea in that quarter, and that the ice sojourns even longer in those than in these regions. The ice, in effect, can circulate southward but in small quantities, partly perhaps by the north of Nova Zembla, and partly by the Straits of Nassau and the North Cape of Tchuschis, and even if it is not true that the American continent extends into the north east quarter of these seas, still I do not conceive it possible, that the Siberian Seas should discharge the ice towards the north, to be afterwards drifted south by a contrary set of currents, since the shoals generated in the vicinity of the pole, during nine months of the year, would unavoidably oppose its circulation. I am inclined to think, however, that the ice is not equally abundant in that quarter as in the seas of Spitzberg; for though the shoals of the latter migrating north and south by means of different currents, at length find an outlet; yet the accumulated stock of this vast magazine,
is

186 VOYAGE TO THE NORTH POLE.

is fully kept up by the constant influx of shoals from the west of Nova Zembla, and the north of the white sea.

On the first of the month, being in latitude 74° , I repeated my experiments on sea water, and found that 100 pounds gave $4\frac{3}{4}$ of salt; when north of 81° of latitude, where the intensity of the cold produces a considerable discharge of that substance, a similar quantity of water contained only 4 pounds of salt. The seamen directed my eye to black spots in the water, though of an unfathomable depth; an appearance as common as it is to me unaccountable, in the vicinity of Spitzberg. I am assured they only appear in the months of April and May, and that in June and July spots of a whitish colour are equally frequent. I cannot pretend to give any explanation of this appearance, and should have been disposed to consider it as a sort of visual disception, if I had not examined it with care.

The barometer serves, in a great degree, to confirm an opinion I adopted upon my first entering these frozen regions; I mean, that

that the ice creates an atmosphere peculiar to itself, and differing from that either of the sea or dry land. In these climates there exists not a single cloud; when the sky is overcast, the air seems loaded with a universal haze. When the sun shines, the heavens presently assume a uniform serenity. A warm sun is often succeeded by winds somewhat high; but their general character is mild and feeble, and I am convinced, that the sea gales penetrate but a short way into the frozen zone. My barometer, graduated by Rhinland, has the variations of Europe marked 28 inches 9 lines, while the variations of the ice seem to be 29 inches. I am of opinion likewise, that the mercury serves to indicate the greater or smaller quantity of ice, with which we happen at any given time to be surrounded; and the sequel of this voyage seemed to establish the truth of this conjecture. The greatest fall of the barometer happened on the 17th, with the wind at east north east, by no means blowing fresh; it is true, the sky was clouded over, it had blown the evening before,

before, and we had snow the succeeding days, accompanied with severe cold. Navigators assure me, that here easterly winds are almost constantly attended with haze and rain, a circumstance, which joined to the sinking of the barometer, inclines me to suppose, that east and north east of us, there exists a sea much less incumbered with shoals. On the other hand, north and west winds, especially the last, uniformly usher in fine clear weather.

On the 17th, a north and north east wind drifted us southward to the Devil's Cape; it stands upon the island of Amsterdam, and affords pretty good anchorage, but somewhat exposed to storm. The island is not more than three leagues in length by two in its greatest breadth; and consists of much lower ground than the mainland, from which it is distant two leagues and a half. It is a league and half from the island of Archipel, which stretches north and south to the end of the mainland, and is at a similar distance from Dean's Island. The anchoring ground is in a creek, east from the Cape; though vessels
anchor

anchor likewise at the eastern point of the island, as well as between this and Dean's island; but the last of these situations is in a great measure environed with rocks, particularly towards the east; the most convenient passage into it is from the west. The island of Dean is higher than that of Amsterdam, though covered by the mainland. East from Dean's bay, and south from Engelse bay, it has very good anchorage; the last of which, however, is the most secure. In these stations the depth of water is from eighteen to seven fathoms, close in with the land. At a small distance, on the side of the main sea, the sound deepens very considerably; and between the islands and the mainland, the lead gives three hundred fathoms. The small island of Vogelsand affords also very good anchorage, which, being less exposed to the wind, is perhaps more eligible than any of the former; the anchoring ground lies south east close to the land, insomuch, that they moor the ship upon the island itself.

About

190 VOYAGE TO THE NORTH POLE.

About seven leagues south, on the north west side of the Cape, is Magdelene bay, where ships anchor in three different places, of which the safest and most convenient is in the north east quarter of the bay, between a small island and the mainland, with twelve fathoms water. In the south and south east, behind a prominent strip of land, is another, which is also safe. Here the navigator may even refit, and return his ship into six fathoms water. Eastward, however, stands a mountain, from which the wind is apt to descend in violent gusts. That which lies in the south west, though of the largest extent, is the least convenient. The bay itself is a league over at its entrance, and a league and a half to its bottom, with from sixteen to twenty fathoms water.

On the north and west coasts, which are very well known all the way from the Straits of Hinlopen, are several bays and other situations, where a ship may drop anchor. Those, however, of Clok, north east from Vorland Isle, Cruis, Magdelene, Deen's Isle, and Renneveld, are the

the best ascertained. But in the very safest of those places, seamen ought not to be unmindful of the violent squalls that suddenly come from the adjacent hills.

C H A P. XXIV.

Description of the Islands of Spitzberg—Huge Mountains of Ice are scattered along the Sea Coasts, which are washed by excessive Torrents—The Vegetation is extremely rapid—The Quadrupeds of these Islands described, and the periodical Changes in the Colour of their Fur explained.

ALL along the shore lie numbers of drifted firs, carried in by an eastern current; trees which probably descend from Samojede, and the coast of Lapland. Many more are seen floating among the ice.

The islands of Spitzberg extend from $76^{\circ} 30''$ to $80^{\circ} 9''$ of latitude; Vorland Island, which is the most westerly, lies in $6^{\circ} 45''$, and the small island farthest towards the east, in $30''$ eastern longitude.

Spitzberg

Spitzberg presents itself to the eye in lofty ridges, with tops of a conical form; while the lower grounds bristle up in large fragments of rocks. Hence the general aspect of the country is extremely savage; rocks rising in perpendicular strata to a great height, huge masses of stone hanging in the air near the summit, or tumbling from their bases half way to the bottom of the mountain, led me at first to imagine, that its present disastrous appearance had been owing to the eruptions of volcanic mountains, or other dreadful convulsions of nature. Upon closer attention, however, I should rather refer it to the domineering violence of torrents, originating annually in an abrupt and copious dissolution of the snow; torrents which tear up the soil, loosen the rocks, and sweep every thing before them in their descent. The wild and dismal features of Spitzberg, being very similar to those of all the countries I have seen equally high in latitude, incline me to this, rather than to the former opinions. The rocks have a fine grain and compact texture, with their colour better defined

defined in general than is that of ours; the greatest part of them are of a greyish black, some of a whitish grey, and some approach to a yellow; many of them are shaded with veins of different colours in the manner of marble. They emitted, when set a rolling, a kind of sulphurous smell, which seemed to suggest, either that they were volcanic, or at least substances that had been detached from mountains containing volcanic matter; but as the smell was increased by resistance, and in proportion to the number of obstacles the stone met with in its fall, I am convinced it was nothing more than a general effect of friction. Slate Strata are very common in this country, which is said to contain likewise mines of iron and coal.

I observed mountains of ice standing at certain intervals along the shore, an appearance which, as it seems certain that no such masses drift into those seas, occasioned in me some surprise. Considering their scite, which was close to the land, I imagine they originate from the base of shoals thrown upon the coast; and that from the

alternate freezing and thawing of the snow, their summits, in the course of time, gradually rise to this high elevation. On many of the Capes of Spitzberg appears a species of small *Glacière*, in the form of a sugar loaf, which I am disposed to refer to a similar process of nature. I frequently observe, that when it neither freezes on deck, nor is the weather disagreeably cold, the haze after a fine sunshine in our * inferior day, generates icicles at the top of the rigging; these capes however stand much higher in the atmosphere than the ship's masts, and though the sun is strong enough to make a considerable impression on the snow and hoarfrost at the summit, yet a part of the mass being left in a state of partial solution, is converted by the next frost into solid ice, which is henceforth insoluble by the solar rays. Thus the sun producing but a superficial effect upon ice and hail of any consistency, only prepares them for a state of consolidation upon the return of frost. Supposing, therefore,

* The first twelve of the twenty-four hours.

the basis of the small Glaciere to have been laid upon the Cape in this manner, it is easy to conceive, how it should have assumed a conical form from a constant repetition of the same process. If the largest ridges present no such appearance, it is because the sloping sides of the mountains, with their intervening vallies, are too extensive to admit so sudden a cessation of heat as would interrupt the melting and descent of the snow.

Summer commences, and the noise of innumerable torrents begins to be heard on all sides; torrents, which, from the prodigious impetuosity of their fall, scour the creeks and bays of such large masses of ice as the currents of the sea had been unable to dislodge. The coast becomes clear of every incumbrance, when white fishes, as well as several other kinds, may be found in abundance in the bays and mouths of the torrents. The soil, impregnated with moisture, begins to feel the genial warmth of the sun, and nature seems to awaken to life and activity; conscious, however, that she has only a momentary

respice. The plants push their leaves, open their blossoms, ripen and die; the Rein-deer descend from the mountains, and fatten in the plains of Renneveld, on the downs of Wittebay, or marshes of Clok. The birds lay their eggs, and hatch their brood, upon the southern side of the rocks. Six or seven weeks pass away and then every thing relapses again into the calm and torpid state of death.

The soil produces neither tree nor shrub; but abounds in grass sorrel, and a species of mild scurvy grass. Here and there one meets with a large white flower, on a stem about two feet high, with a few others scattered over the ground.

The native animals of Spitzberg Islands are Bears of an extraordinary size, a small species of Foxes and the *Rennes a gros sabot*, or the large hoofed Rein-deer. The first are constantly white, as well as some of the second tribe, which in general, however, are of a whitish grey; and the last are uniformly grey in the summer, and white in the winter season. As soon as the warm weather sets in, they begin to moult

moult and fatten. The young fur grows of an iron grey with a reddish tint, and at the return of winter is full grown, still retaining the same colour. The cold increases, the animal becomes languid and lean, and is soon reduced to such extreme want, as to gnaw his hoofs and suck his own juices; his hair, meanwhile, becoming long and white. Now this close connection of grey fur with a strong and white, with a weak and scanty state of the bodily humours, leads one to imagine that the periodical change of colour in northern animals chiefly depend on this circumstance. In the summer the bodily humours circulate freely over the whole system; but in winter, the vessels shrinking from the cold, the fluids are propelled towards the vitals, leaving the extremities in a starved and withered state; when the fur, from a privation of moisture, loses its colour, and becomes white. The weakest animals of their kind are the most liable to this change; and I have been told by the fox hunters of Spitzberg, that the skin of the white fox loses its fur much sooner than

O 3

that

that of the grey. The Russians, who are settled as hunters on these northern shores, catch white foxes in December and January only; the season when the fur is deemed of the finest quality. But whence, it may be asked, come these animals, particularly the Foxes? we may suppose that the Bears, rendered amphibious by hunger and natural ferocity, might have migrated hither by passing from one shoal to another. They take the water with alacrity, can dive, and remain a long time under it, insomuch, that the ice, rather than the land, seems to be their natural element. Some of them are of a monstrous size. I have seen the skin of a white bear that measured eight feet by five. The Rein-deer, though reluctantly, likewise takes the water when it lies in his way, and can swim to a great distance. His hoof is very large and turned upwards; the horn of which it is composed is extremely hard; his flesh is finer than that of the stag and equally palatable; he expresses desire by beating the ground with his forefeet, is docile, and easily tamed. The foxes are remarkably small, being little above the size of a large cat; and

are in the same manner capable of being domesticated, though with more difficulty than the Reindeer.

C H A P. XXV.

Description of the Sea and amphibious Birds of the Islands of Spitzberg—Account of the Establishments the Russians have made there, for the collecting of Furs—And critical Reflections on the Advantages which present themselves to that enterprising Nation.

THE Partridge is the only species of land bird I have seen on the islands of Spitzberg; but the Retchis, Prienwen, Molmoque and some other kinds of sea-fowls, are met with in abundance.

From his being unable to stand upon his legs, it should seem that the sea is exclusively the element of the Molmoque. He is about the size of a large duck, with the body short and robust, the neck thick, the head flat, and wings very strong; the

plumage is commonly grey, though sometimes whitish, with a thick down on the skin; he has a grey webfoot, and pinions rather long, but thinly clad: the bill is black, of a considerable length, and hooked and sharp at the extremity like that of the Sparrow Paroquet. Though this species descend as low as 66° of latitude, they are there but few, compared with the multitudes we meet with in the higher latitudes; at this moment they surround us in great numbers. Their food is flesh or fish, they seem of a very irritable temper, and the feathers emit an intolerable smell.

As often as we were engaged in the dissection of a whale, these animals flocked around the vessel; some devouring the fleshy refuse that was thrown into the sea, while others sipped the oil as it floated on the surface. Their cry has a resemblance to that of the Goualon, and their chirp is like that of common fowls, but in a stronger note.

The Prienwen, though a bird both of land and water, discovers a predilection for the ice. In size he is like a large

pigeon; his wings are long and slender, with feathers of a dazzling whiteness: in the young birds the tail, extremity, and edges of the wings, are spotted with black. He has a black webfoot, and the eye dark like that of the Molmoque; the beak yellow, weakly formed, and moderate in length; he appears of an inoffensive nature, is easily tamed, rather dull, and lives on flesh and fish. I kept one of them for some time, which took his food from between my fingers, and seemed to know me when I approached his cage. He seeks to perch in a high situation, and his cry is analogous to his name Prienwen.

The species, named Retchis, is extremely numerous, and attached to the ice and grounds in its vicinity. He is about the size of a large thrush, and his voice approaches to that of the same bird, when on wing; he dives rather from fear than choice, and in this respect differs from the Prienwen and Molmoque; he has a strong resemblance to a species of wild duck, I have seen in the Philippine Isles, which is known by the name of Balivis.

The

The Burgomaster, Paroquet, Pigeon, and Lomb, are likewise found in these islands and seas, though in smaller numbers. The Burgomaster ranks the first among the feathered tribes of those northern regions; he is as large as a Goose, with body and wings extremely robust; his eye and feet are yellow; his bill slender, and except one spot on the under part of it, of the same colour with the eye; his plumage, though in general white, is of an ash colour, on the back and wings, while a white edging round its border, produces a beautiful contrast, and renders him a very handsome bird. The Paroquet probably owes his name to his hooked beak; but what makes it an object of some curiosity, are the red, white, and blue bands which incircle it from one extremity to the other. The Pigeon, as well as the Paroquet, has red feet, and in both, the plumage is speckled black and white. The Lomb appears to be a species of Duck, and resembles him in his plumage; but with a very wild and dismal cry.

I have

I have seen among the shoals, and at a great distance from land, a pretty and small species of bird, which lives constantly on the ice, and is on no occasion observed on shore. He seems of a very delicate frame, avoids the water, and indeed nature having denied him the web foot of the aquatics, does not appear to have intended him for that element. It is impossible to say with certainty upon what he subsists, or where he builds his nest; though the mariners seem to imagine that he builds in the ice, and feeds upon snow. But I am not credulous enough to be of the same opinion; one of them lived under my eye for a considerable time; he fed upon sand and flower, and picked snow at times like the Prienwen; but it seemed to be for the purpose of drink, rather than of food. He is of the size of a sparrow, with the bill longer and more delicate. The ground of the plumage is grey; his wings and tail, which are considerable in length, are black mixed with white feathers; his beak is grey interspersed with some white spots; the head and neck have likewise a mixture

mixture of white with a collar of the same, and a white stripe runs along the wings; the belly and remaining parts of the body are white, except some small reddish specks on the head and breast like the Linnæus. He is a charming sprightly little bird; his voice resembles that of the Lark, when she flits from one field to another, and I am told he chants at times very agreeably.

It is now upwards of thirty years since some Russian merchants formed hunting settlements in different parts of these islands. The object of their traffic is not the Whale; but Bears, Reindeer, Foxes, Sea-Lions, and Sea-Wolves, whose oil and skins are sent from time to time to Archangel. Once in two years their countrymen arrive in six or seven small vessels to relieve the hunters on duty; and this happens towards the end of July, or in the month of August, when those who have completed the term of their service, return home to their families. The settlements stand on four bays, Clok, Groen, Vorland, and Crugs, situated on the west coast of the island; besides

besides a fifth in the north coast on the bay of Renneveld. This hardy race of men pass their winter on the frigid extremities of Spitzberg, and boldly oppose their persons to all the rigors of the Frozen Zone. Invited to the little island of Moffin, by the prospect of game in greater abundance, they are known to remain on that desert spot, imprisoned by the ice, for the space of six weeks, destitute of every means of subsistence, but the flesh of the sea Lion; meanwhile a sort of twilight, the splendor of the Aurora Borealis, and the reflexion of the snow, serve to light them on their excursions, and to enable them to continue the chase during the very long nights of a Hyperborean winter. There prevails towards the end of December, in the month of January, and the beginning of February, a dry penetrating cold, when the atmosphere is perfectly still, the sky of a peculiar serenity, and the whole firmament seems to glow with the united effulgence of stars. In March and April, the season when the north and north east winds set in, there are snow and

and hoar-frosts. The month of May, and the beginning of June, are fine, and then the winds varying from the north to the north west, west, south, and sometimes, but rarely, to the east, the frost seems disposed to relax of its severity. June and July are warm, but fraught with haze, accompanied by weak and variable winds. In the months of July and August the rains become frequent, and the winds, shifting to the quarter of the east, assume a bolder tone. The snow returns and prevails with fresh breezes in September, October, and November, during which period it freezes with great severity; and the white frost falls every where in profusion. About ten years since, some ships of war appeared in these seas, charged by the court of Petersburg to visit the hunting settlements of Spitzberg, and to make an accurate survey and plan of the island.

But what a singular view here presents itself of the policy of Russia, which, with an empire extensive enough to embrace the confines of Germany, China, Persia, and Turkey, and with harbours on all the
prin-

principal seas in the world, is yet not unmindful of a few miserable hunters in the island of Moffin. Were the population of this kingdom in tolerable proportion to her extent of territory, what bounds could be opposed to her ambition? But the slavish dependance of the Russian peasantry, and the want of proper regulations respecting marriage, threaten to retard this essential branch of national consequence to a very late period of her history. On the other hand the practice of transporting convicts to Siberia, a vast country, almost destitute of inhabitants, appears highly politic, inasmuch as it makes the punishment of criminals the means of populating and improving the soil. Her harbours on the coasts of Kamschatka, and the Black sea, may contribute to render her navy, one day, superior to that of any other nation whatever. I question, however, whether the navigation of the sea of Tartary can ever be made to answer a more valuable object than a coasting trade; though I have little doubt but it may be extended even beyond the boundaries of Tchuschis, provided

provided that Cape has been actually doubled, and the communication between the rivers Colima and Anadin can be opened and ascertained.

C H A P. XXVI.

The Navigation amongst the Ice becomes so very difficult, that the Vessel is in Danger of being crushed in Pieces, and is extricated by almost incredible Exertions —By the Process of freezing, the Sea Water is almost entirely freed of its Salt —The Fact is established that an extensive Range of Ice forms an Atmosphere peculiar to itself.

WE had again launched into the ice, steering west south west, and on the 24th of May were in latitude 78° , and in $1^{\circ} 20''$ east longitude. The wind, which continued from the 17th to the 28th in the north and north east, was in our favour; the weather was excessively cold, and the thermometer sunk eleven degrees below

below frost. We had frequent falls of snow, and the sea was frozen all around us to the depth of five or six inches. On the external surface of a window glass belonging to my cabin, the door of which was kept shut, there appeared a crust of ice half an inch in thickness; and the water and beer froze in the casks. The precautions employed in this navigation are various; sometimes we moor upon a shoal which intercepts our course, and wait patiently till some variation in the wind enables us to clear it; sometimes, when at anchor, finding that we drift with such velocity as to be in danger of running foul of the surrounding ice, we contrive to deaden the ship's motion by attaching ourselves to the summits of two different shoals; sometimes the shoals, in drifting towards us, encounter, but instantly parting with an accelerated motion, it is necessary to manœuvre with alertness and precision, in order to avoid a mass of ice, which, from its vast size, must greatly damage, if not crush the ship to atoms. On the 28th we entered that region, which is

chiefly occupied by banks of ice, whence it has been named by navigators the west coast. Here a dazzling whiteness, overspreading the whole western quarter from north to south, except a few dark specks, appeared to indicate that all below was one extended surface of ice. Our latitude, meanwhile, was 78° , with $25''$ west longitude; the variation of the needle 20° . The wind obliging us to moor upon a bank, by a sudden movement of the adjacent ice we found ourselves deprived of every kind of outlet. The ice lay directly along side of the ship, and I was unable to discover, through the whole extent I could embrace with my eye, a surface of water equal to ten fathoms. We surveyed the ship, and were happy to find that hitherto we had nothing to dread from the pressure of the shoals. At three o'clock, however, next morning, an icy wreck, which floated abaft, compressed by the shoals in our wake, accumulated at the stern; when apprehending that the pressure falling unequally upon the rudder might spring the iron fastenings, we thought it prudent

to

to unhang it. Luckily the center of compression was at a greater distance from us than we imagined, and in the space of two hours the wind shifting to the south east with a fine breeze, the sea fell a little, and the banks parting, floated in large fragments along side the vessel.

As soon as these shoals broke up, a dead Whale which had fallen a victim to the harpoon, came drifting towards us, and we wrested it from the jaws of a multitude of Birds, Bears, and Sea Dogs, whose assemblage first directed our eye towards it, and who afterwards kept hovering around us, ready to assert by force their title to the carcase. The Bears sitting on their tails, at a small distance, growled disappointment, and seemed to reproach us with an act of violence and piracy, committed against them in the seas over which they claimed a dominion. The Unicorn and Sea Lion become less frequent in proportion as we descend to a lower latitude; and Whales now appear in troops; but *they* likewise become rare from the infrequency of the shoals. I have observed,

at times, the female with a young one which she suckles, but I never saw more than one cub attending the same mother.

I wished to know whether the salt of sea water is discharged in the act of freezing, and for this purpose I tasted pieces of ice on the 3d, which had been frozen round the ship on the 2d of June; when I found that the water had lost $\frac{1}{4}$ of its salt. I tasted ice again on the 8th, and found it much fresher than what I had tasted on the 3d; but during this interval the mercury having been only twice so low as one degree and an half below frost, I imagined that perhaps a more intense cold, or a longer continuance of it, might discharge the salt intirely; and therefore on the 27th, I tasted ice which had been exposed to an unremitting cold of between six and eleven degrees for the space of ten days, and found it almost perfectly fresh; a brackish taste being scarcely distinguishable. It appeared to me, however, that the ice had deposited a greater proportion of its salt between the 3d and 8th, than it had done during this intense cold, even

at

at the end of 19 days. My fluid balance, immersed in a solution of ice on the 31st, sunk as in fresh water to the graduation of 33° , whilst it stood in common sea water at $25\frac{1}{2}$. Sea water, exposed in a bay to a cold of 9° below frost, was frozen, but lost only a very small portion of its salt, and acquired little consistency; whether this circumstance was owing to a very tranquil state of the atmosphere, I cannot pretend to say. On some occasions the ship, in traversing new ice of the thickness of three inches, moved without the smallest noise, as if she had been sailing through butter of a hard consistency; but I remarked also, that this appearance was not always the same in similar situations. I dissolved pieces of ice, dug out of the heart of large blocks, and found that the water in some of these specimens was perfectly fresh; in others less discharged of the salt than in the ice I had prepared for the experiments; but I could not be equally sure as of my own ice, that these samples were homogeneous, I mean wholly and uniformly composed of sea water.

Such had been the crowded and compact state of the shoals as to prevent our enlargement, till the 1st of June; and in this perilous situation having observed a small piece of water, where the ship, if she could reach it, would lie more at her ease, we had recourse to that particular process in which hawsers, sails, and poles are all employed in the extrication of a vessel thus entangled. This almost incredible effort of labour and perseverance, the unceasing object of my astonishment, lasted, no less than 36 hours; and the effect is only practicable where the shoals are of a moderate extent, and not very compact in their arrangement; since it is by increasing compression in the adjacent ice, that a passage may be opened in this manner to the vessel; and hence it is an expedient wholly inapplicable to the banks, though in some of the least extensive, we observed it to produce a very small degree of motion. Pressing a little more to the west, we came to a bay, where being overtaken by a thick haze, we were obliged to moor upon a bank stretching westward.

The elevation of the Barometer in this region, where the surface of the ocean is wholly converted into banks of ice, with scarcely a drop of water in a fluid state, confirms me in my opinion that the ice stamps a particular character on the incumbent atmosphere. In an overclouded sky, attended by a very thick haze, the mercury pointed 29 inches four lines and a half; it remained at the same height for some days, and only descended when the channels began to appear between the banks.

C H A P. XXVII.

Description of the Whale Fishery on the West Coast, with an Account of the various Instruments employed, and Suggestions for their Improvement.

ON this cruize we saw a number of Whales, and caught one, while some others extricated themselves from the harpoon. The two branches of
P 4 this

this instrument, terminating in a sharp point, frequently tear the flesh, and lose their hold of the fish; probably this inconvenience might be remedied by substituting a kind of knob in the form of an inverted cone, instead of the sharp point. As the western whale is of a much longer size than that of the North Seas, I shall here make a few observations on this celebrated fishery.

The ships destined for the Greenland Seas, carry six or seven boats, each of which is provided with a master, four rowers and a harpooner. These boats are of a light construction and row remarkably well. Their dimensions are five and twenty feet in length, by six and one third, and about three from the benches to the keel. They carry a fishing apparatus, consisting of seven pieces of cordage of a hundred and twenty fathoms each; twelve fathoms of a fine flexible rope for the purpose of eluding the shells; three harpoons, six lances, a pickaxe, a hammer, a stake shod with iron to moor the boat upon the ice, a sea compass, and a flag.

The

The harpoon, which is of an angular form, has two edged sides, terminating at the extremity in a sharp point; the sides or branches, are barbed interiorly with a kind of semiharpoon; in the plain of the angle is a perpendicular iron rod fixed in a wooden handle seven feet in length; the whole length of the iron is two feet and a quarter, and its smallest circumference an inch and an half. The edge of each branch is six inches and an half in length; the distance between them five inches $\frac{3}{4}$, and the greatest thickness of the iron in the plain of the angle nine lines.

The twelve fathoms of fine white line are meant to be fixed to the harpoon, and spliced with a piece of larger cordage, the first being two, and the last three inches in circumference.

The lance has a blade nine inches long, three and $\frac{1}{2}$ broad, and two lines in thickness, and an iron rod five feet in length, and one inch and $\frac{1}{4}$ in circumference, inserted in a handle six feet long.

As soon as the ship arrives on her fishing station, she shortens sail and hoists out
two

two of her boats which row round her at a considerable distance. If an opportunity should offer, she finds it still more convenient to furl her sails, and moor upon the ice; as in this case, being in a condition to spare the greater part of her crew, she can employ more boats on a cruize. If the ice is in the form of banks, the rowers lie on their oars, or ply along the coast at the distance of a gun shot or more from the ship, as well as from the other boats, infomuch, that altogether they occupy a space equal to a cannon shot and a half in extent. The harpooner chooses to cruize on the east rather than on the west side of the ice, finding by experience, that the Whale always bursts from her confinement towards that quarter. The bottom of a bay however among the shoals is esteemed the most eligible situation for the Whales, as his game, hampered by the ice, is constantly in readiness to embrace the first opening to rear his head above the surface.

The

The harpooner stationed at the bow with his left thigh passed through a board and his right knee resting upon another, is completely secured from every accident which might occur from the motion of the boat. He holds in his right hand, the harpoon stretched over the left, in which is a coil of white line, keeping his eye constantly fixed on the surface of the water. At length the Whale starts into view, and in the same moment the rowers set upon her generally from behind, though sometimes directly in front, as the head of the animal is so large as to prevent her perceiving the boat. Having come within the distance of two or three fathoms, the attentive harpooner lodges the instrument in her head, back or side, and instantly runs off his line. At the same time it is the business of the boats in company, if at hand, to follow up the attack by throwing a second, perhaps third harpoon. The principal danger to be apprehended on this occasion, is from the first stroke of the Whale's tail, which in her anguish and surprize she is apt to wield with dreadful

ful violence. She frequently however dives directly to the bottom, or shoots diagonally through the water; a mode of flight very inconvenient to the boats, as in this case they may be dragged after her to a great distance, while the harpooner must supply line as long as the Game continues to require it.

Mean while the harpooners give signals of success to the ship, that they have struck a Whale; the ship in order to prevent the interference of strangers repeats the harpooner's signals, by hoisting a flag accompanied with three cheers. All hands on board, with every boat in their possession now proceed to assist their companions, by supplying more line and by coiling it up as the Whale becomes fatigued and ceases to be capable of resistance.

It is common upon striking a Whale to run off 350 or 400 and sometimes the length of 1000 fathoms of line. If the wounded Whale dives perpendicularly, she struggles at the bottom, and not very rarely effects her escape; though generally

she becomes faint from fatigue and loss of blood, and surrenders at discretion. If her flight is diagonal or in an inclined plane, the boats continue drifting in the direction of their prize, who seldom makes a longer trip under water than a league and a half; but the route of all others the most perplexing to her pursuers is under a shoal; for the boat being intercepted by the ice, must keep running off an immense quantity of line, while the Whale perhaps comes afloat, but getting intangled is lost below the ice. Frantic with the pain of her first wounds, she sometimes rebounds and struggles on the surface, when she seldom fails to be saluted with another harpoon; but, if she has taken under the ice, as there is some probability of her breaking cover on the opposite side of the shoal, it is the duty of the auxiliary boats to be ready to strike her the moment she lifts up her head. She is now played or hauled on the line according as she is felt to be more or less exhausted; when reduced to such a state of weakness as to obey the line and rise

to

to the surface, still she resumes a little vigour, and consequently continues to be played with by the harpooner, an exercise in which I have seen him employed upwards of four hours. She comes afloat a second time and is now exposed to an attack from a multitude of lances; but once more collecting all her strength she makes the last dying effort, the harpooner still running off a small quantity of line. At length, however, the prize lies motionless on the surface of the water; and the crew, plunging their lances into his bowels, atchieve the catastrophe with repeated shouts of joy. The tail and fins enable them to lay her along side the ship; and by means of hook and pulleys they hoist the carcase a little above the surface, beginning the business of dissection by cutting off the tail.

C H A P. XXVIII.

Method of Whaling employed by the North Americans, and Inhabitants of Davis's Straits, in Seas unincumbered by Ice—The different Processes used in separating from the useless Parts of the Animal the Blubber and Bone—Natural History of the Whale.

SOME nations, particularly the British Americans and the savage tribes of Davis's Straights, harpoon the Whale in the open sea; and instead of employing a large quantity of line, like the Europeans, employ fifty or sixty fathoms only, at one extremity of which is the harpoon, and at the other, a species of buoy or wind balloon. The fisherman, having thrown his harpoon, permits the Whale to flounce as she pleases; but after swimming and diving by turns for several hours, she begins to weary from loss of blood and the unsupportable incumbrance of the buoy. The buoy, becoming a counter-
poize

poize to the weight of the Whale, rises to the surface, when the harpooner who follows as much as he can in the path of the fish, at last comes up with his balloon and takes possession of his prize; a mode of whaling however only practicable in the open sea, since among shoals of ice the buoy would unavoidably either be destroyed or carried out of sight and lost by the intervention of the ice. Besides, in an unfrozen sea, as well as on the confines of the ice, the Whale is but rare; it being in the higher latitudes alone that she is found in any degree of frequency.

As soon as the Whale has been laid along side of the vessel, it becomes the business of the crew to get the blubber on board; and the carvers, as a precaution against slipping down on the greasy skin, fit to the soles of their boots a square piece of iron or a sort of patten garnished with spikes. Furnished with knives of different sizes from two to three feet and an half, inserted in handles three or perhaps four feet long, they descend upon the carcase, which is surrounded with
canoes

canoes containing all the other implements of dissection. They make an incision near the head, cutting a circular section of fat without separating it from the flesh, in the form of a collar, which by means of hooks and pulleys enables them to turn up new surfaces to the knife. The blubber is then divided into longitudinal stripes or slices from head to tail, and subdivided transversely into pieces of four or five feet, which are hoisted on board by the assistance of the capstern. These large portions are once more subdivided into smaller ones of about a foot and an half, which are thrown into the hold in order to their being afterwards stored up. The gums, containing the beard or whale bones, are got on board entire; but afterwards divided by wedges into convenient portions.

The carvers return to the fat now collected in the hold, and prepare it for the casks, by stripping off such fleshy and finewy appendages as attached it to the solids. The slices are again cut into pieces of four or five inches, and thrown into a large tub, from which they are shoveled

into a funnel inserted in a cask ; and as the fat has been somewhat melted by the former part of the process, it is stowed in this manner with little difficulty. The more coarse and fibrous parts of the fat, which are separated with great care from that of the best quality, they convey into separate casks, throwing the hard and skinny filaments into the sea ; a refuse, however, which, after being dried, contributes to the subsistence of those miserable savages who roam the shores of Davis's Straits. The whole of this business is executed by means of an apparatus consisting of knives, shovels, forks, &c. without the crew at all touching the fat with their fingers. There are other articles of detail on this subject, but too unimportant to be described here.

A Whale of the middle size, such as we met with on this cruize, measures forty-eight feet from the head to the extremity of the tail, and twenty-six in the largest circumference, which is at the head. The head is a little more in length than $\frac{2}{3}$ of the whole body; the opening

opening between the two branches of the tail, is a little less than the length of the head, with two feet and an half in depth; the breadth of the fins is $\frac{3}{4}$ of that of the tail; and their length a little more than their breadth. The jawbones, uniting before in an elliptical form, are eighteen feet each; the gums are fourteen in length, and contain the roots of the beard or whalebone attached to the upper jaw, whose extremity forms the snout or muzzle of the fish. The eyes are placed laterally on each side of the head; the orbit from one corner of the eyelid to the other is five inches; and the eye ball, which is three inches in diameter, is covered with a kind of retina, shewing the black of the pupil partially in the form of a vertical oval. At one foot distance behind the eyes stand the ears, with a very small tube not exceeding the bore of a tobacco pipe; the orifice of the tube, which creeps in a spiral line across the flesh and fat, seems loaded with the humors of the ear.

Q 2

The

The nostrils are seated five or six feet before the eyes, but in a high plane, and run across the upper jaw; their orifice forms the arch of a circle, whose radius is seven inches; but the nasal duct gradually diminishes, and at the distance of a foot, internally, does not exceed five. The nostrils are separated by a membrane two inches thick externally, but which increases in dimension farther up; the skin round the orifice is soft and flexible, with the capacity of closing for the purpose of excluding the water; the intermediate membrane is likewise formed to dilate and contract, in such a manner as to open and shut the canal; the use of the nostrils in this, as in other animals, is respiration, which the Whale performs by blowing the water backward.

The navel and the general structure of the parts of generation, are very much the same in the Whale as in quadrupeds. We observe in the male an elliptical cavity or sheath about four feet in length, and eight inches in depth; which, from a rotundity in the flesh, appears almost close. Three

or four inches from the commencement of this cavity, backwards, are two holes, which contain the testicles, and near which is the penis. The penis extends the whole length of the sheath or cavity, and terminates in a point, in which is a small perforation for the purpose of animal evacuation. At the distance of a foot behind these parts is the anus or excremental duct, presenting an opening of three inches.

In the female we find two teats, placed laterally before the parts of sex, and nearly six inches in diameter; the nipple is hard, and shrinks under the surface of the teat, which is somewhat globular in its formation; the nipple is two inches in length, by one and an half in diameter, and terminates in a point. The lacteal canal, winding near the surface, leads to a small basin or reservoir, and has its termination at another of greater dimensions. The external distinction of sex consists in a longitudinal slit of eleven inches; and is formed inwardly of a hard substance approaching to the consistency of bone,

covered with a fine kind of flesh. A little within the aperture is a fold of cartilaginous substance of a rough and irregular surface, before which is the urinary passage, and behind it a canal of a smaller size; close to the longitudinal slit behind is the anus.

In the structure of the mouth we find only three bones, the two bones of the lower jaw and the nasal bone, to which are attached two large lips covering the beard, and a vast tongue of a soft substance, fourteen feet in length, six in breadth, and three in thickness.

The palate is composed of the whale-bones arranged in plates on each side of the upper jaw, to which they are attached by a white substance of the nature of hard tallow, but finer and more compact in the grain. The plates run parallel to each other, but a little curved, and, making a sweep on each side of the mouth, towards the throat, present the appearance of a vault or gothic arch. They are from ten to eleven feet in length, by five inches and an half in their common breadth,

breadth, with two lines in thickness. They are disposed surface against surface in the manner of leaves presenting their edges to the eye, so that the breadth of the plates becomes the depth of the palate. The palate is covered with a kind of hair, which is about fifteen inches long at the extremity of the plates, and seems to be nothing more than the continuation of the small fibres of the whalebone. The plates become smaller as they approach the lip of the jaw, where they terminate in a point. This provision of nature is meant to answer the purpose of teeth; the plates enable the animal to bruize as well as to collect her food, while the hairs acting like a net, detain small substances, and allow the water to escape.

C H A P. XXIX.

*Conjectures respecting the Food of the Whale
—Continuation of its Natural History—
the Errors which have crept into the
Description of this Animal—and a few
philosophical Reflections which naturally
occurred to the Author, from the Contem-
plation of so stupendous a Creature.*

I Am unable to say what constitutes the food of the Whale, though generally it seems to consist of substances of a small size, not very solid, and probably of an aqueous kind, as the elasticity of the whalebone certainly would not yield to any thing either hard or tough. I made the sailors hoist up a small Whale to the capsterns, in order that I might have an opportunity of examining her stomach; but the tackle, by which she was suspended giving way, and the men in the boat below having narrowly escaped being hurt, I abandoned my design. Some pretend to affirm that the Whale eats a
species

species of Polypus of the small size of a bean; others, that she lives on a fleshy excrescence, which I was shown, as large as an egg, and nearly in the shape of a melon. The longitudinal fibres that embrace its spherical surface, give it very much the ribbed appearance of that fruit; while red threads, traversing it internally, render its colour of a reddish hue; the rest of it consists of a kind of mucilaginous substance. But I am very doubtful how far we may reasonably ascribe the nourishment of the Whale to this excrescence; for having exposed it to the sun, I found there remained of it in a dried state next to nothing, and yet, as the excrements of the animal, which are of a saffron colour, are by no means destitute of consistency, it seems natural to suppose, that her aliment, whatever it may be, is of a more substantial kind. My own opinion is, that the Whale feeds upon shrimps; for I afterwards caught a sea wolf, having his stomach full of them; a circumstance which serves at least to shew that the shrimp is in great abundance at the bottom

bottom of the sea. Upon the supposition that this is actually her food, nature's substitute for teeth is excellently contrived, for collecting, as well as for bruizing the means of her support; besides, the arrangement of the plates, or whalebone, is close enough to prevent such small substances as the shrimp from escaping through their intervals.

I caused a piece of flesh, containing a part of the esophagus, to be extracted from the mouth of a Whale; the alimentary canal was about five inches in circumference, and formed at a certain depth a species of basin perforated by a second canal. The orifice of this last appeared protected by a sort of lining presenting a circular canal; by which contrivance the food is made to pass round it, and consequently guarded against falling into the second passage. If by accident the food should deviate from its proper direction, it will be received by the circular canal, to be afterwards returned by the coughing of the animal, into its natural course. This canal is besides shut by a kind of valve forming

forming three points, one of which, like the point of a triangle, enters wedge-ways betwixt the two others. The valve consists of a cartilage somewhat long but flexible, and is covered with flesh of a fine texture. The canal, formed likewise of a flexible cartilaginous substance, becomes thicker and more capacious at a smaller distance. It seemed, however, nowhere open in a relaxed state, and is probably so contrived as to remain constantly shut, except when the Whale chuses to dilate it for the purpose of respiration. The orifice is about four inches in diameter, and the canal itself is, I apprehend, what we call the esophagus; but an anatomist would have understood and executed this part of my diary in a style to which I cannot pretend.

The fins have five cartilaginous bones, with articulations resembling those of the fingers, but very slightly marked; perhaps in the great chain of animated nature, the Whale forms that link which connects the Sea-calf with the scaly tribes.

The

The strength of the tail is chiefly exerted by means of an assemblage of muscles running on each side of the spine. It consists of six or seven small ones, each of which is three lines in diameter, and the whole is united by a set of nerves, and covered by a membranous substance.

The brain consists of a substance resembling soft tallow, with threads or filaments crossing it in all directions. As to the quantity belonging to this species, I can only say in general, that in this instance it was sufficient to fill a large pail. The solid flesh runs in strong fibres like that of the Ox, is of a red colour, and about three inches in depth; immediately over the flesh lies the blubber, which in some parts is from eight to ten, and in others from twelve to fourteen inches deep; the whole being covered with a black skin ten lines in thickness.

Like all the native animals of cold regions, the Whale has a great stock of blood and animal heat. I introduced Reaumur's Thermometer into the carcase
of

of a Whale that had been dead about an hour and an half; but after seven minutes it only rose to 17° . In this case however, besides that I had access only to the fat, as the tail had been cut off, the blood was in a great measure discharged, and consequently I could not regard it as a fair experiment. I thrust my hand into the body of a Whale which had been dead some days, and felt, I am sure, a greater degree of heat than had been expressed by the thermometer in the former instance; but in this case I did not chuse to measure the heat with the thermometer, as it had dropped into the blubber, and was with difficulty recovered, in the first experiment.

The general colour of the Whale is black; the under part and edges of the mouth are white, or black mixed with white; the eyelashes, the navel, the paps of the female, and the organs of sex, are white; the general effect of the two last is that of a white *fleur de lis*. The scar of a wound to which this animal is extremely liable, particularly on the back,
tail,

tail, and fins, from the accidents of the ice, and the hostilities of the sword fish, is always white. The white colour is much more prevalent on the body of an old than on that of a young Whale, and probably depends in this species, as in land animals, on the circumstance of age and the state of the bodily fluids.

Adhering to the skin, and very frequently under the fins, we meet with a species of Sea-louse, which feeds and thrives in this situation; it is about the size of a small bean.

The back of the Whale is commonly represented higher and more arched than it really is; a mistake which probably has arisen from the appearance she makes upon the surface of the water. In this attitude, as well as in that of diving, the back only is visible, the head being sunk between the back and nasal bones. The elevation of the former is about two feet, and that of the latter a foot and an half above the level of her body.

The female, as I have already observed, seems to have only one cub at a birth.

I con-

I conceive there is a specific difference in the size of the Whale in these seas, that of the north appearing longer but more slender than that of the south west; and I am sure I have seen small Whales which were of a greater age than others of much larger size. The Whale which was the subject of the above remarks, being of the ordinary size, yielded sixty barrels of oil; there are some, though rare, from which are obtained a hundred and fifty; and there are many which furnish from fifteen to twenty barrels only.

When I reflect on the enormous size of these fishes, which I should regard, if I may be allowed so to express myself, as forming a part of the winged tribes of the aquatic fluid, I cannot help calling to remembrance the animals of the most distinguished magnitude, which people the aerial fluid, and which are endowed with an organized system, and with principles of life and growth, suited to the particular mode of their existence.

Attending to such as are permanently fixed in the soil, and of superior dimensions,

sions, I observe the vast and majestic trees of America holding the first place. Among beings which creep or walk, whether with a slow and restrained or more accelerated motion, the largest is the Elephant; and among those which sometimes walk, but more commonly soar aloft in the air; the most distinguished for size is the Cazoot or Ostrich.

Now I am unacquainted with any thing in the aqueous fluid analogous to these tribes, except the Madrepore, which is of an immense extent, and, like vegetables, fixed to the soil; and the Whale which can quit the ground like the Ostrich, and roam at discretion through the incumbent fluid. I know not whether beings have been formed to creep or walk under the water of the great deep; but if there be any close analogy between the inhabitants of the aerial and aqueous fluids, and if I may compare the Madrepore to the American-tree, and the Whale to the Cazoot or Ostridge, of what enormous size must that animal be, which, corresponding to the Elephant, treads the soil

- at

at the bottom of the ocean. As to Crabs, Lobsters, and the larger species of the same genus, which crawl on the borders of the sea, I consider them as races of mere insects, which frequent the mountainous ridges of the marine soil. It should seem highly probable from analogy, that in the great chain of beings which replenish the terraqueous globe, there are many links which have never yet fallen within the sphere of human observation. My conjecture on this subject receives some countenance from the many curious discoveries made by naturalists in modern times; men who, with infinite industry and penetration, have pursued this chain to a very great extent.

I may, perhaps, have dwelt too long on the article of the Whale; but this being the animal of the largest dimensions hitherto discovered in our planet, I thought him intitled to more than ordinary notice; had I been more conversant in the language and science of anatomy, the above observations on his structure and economy.

would have been more technical as well as instructive; but I return to the ship.

C H A P. XXX.

The Vessel, stationed in a small Creek, is nearly crushed in Pieces by large Bodies of Ice—the curious Motions and Evolutions of these Bodies—with incredible Labour a Bason is cut in the Ice; but is not so effectual as to prevent imminent Danger—the Author philosophizes and recounts the various Perils he has run.

I HAVE already informed the reader that we moored in very foggy weather on a bank of ice, which streached parallel to a bay about a league in breadth; and except this small piece of water the sea appeared wholly covered with ice. We soon found reason to have little confidence in our present situation; an immense shoal was seen drifting towards us, and we made
haste

haste to tow the ship into the bottom of a small creek, but she presently settled on two points of ice which composed the angle we occupied. While we lay here, completely hemmed in by the shoals of ice, numbers of Whales swam on the surface with impunity in the bosom of the bay. We hastened to transport our boats over the ice, to a distance at least equal to ten cables' length; but after submitting to much toil and fatigue, the crew returned without the smallest success; nevertheless, our ears were stunned with noise, for by this time the Whales had begun to blow even in our little creek.

The next day, June the 5th, the bay was intirely choked up; and the ice falling with violence on the shoal that had barred the entrance to our creek, one of our capes was demolished. It is difficult to convey a tolerable idea of the various evolutions of the shoals. I have seen masses of ice, in perfect freedom, drift in directions varying from each other at least four points of the compass; another would take eight different routes in the

space of three hours; a third, after floating towards us with considerable velocity, would without any visible cause slacken its pace, veering sometimes to one side and sometimes to another. The various configuration of the inferior as well as superior surfaces of the ice, presenting itself to the winds and currents in a great diversity of aspects, is the only reason I can assign for these extraordinary movements. A bank, however, from its vast extent is but little affected by the wind; the movements of all such masses seem to be produced and regulated by their own mutual interference. If the impelling power happens to fall on the center of a bank, the whole moves forward uniformly; if it be applied to one end, the hither extremity turns off obliquely, while the motion impressed upon the other is greater or less according to its distance from the point of concussion; if the end of a bank, driven in this manner from the line of its course, falls upon another cape, it either breaks it, or is itself retarded in its progress; and should the resisting be more than

than a counterpoize to the impelling force, the motion of the latter will acquire a new direction. Thus are the shocks and interferences of those enormous masses as various as they are constant in their operation; but, a thick haze having drawn a veil over what was passing around us, I had nearly paid too dear for all the knowledge I obtained on this subject.

Some hours after the cape of our creek was destroyed, we observed from the accumulated state of the small ice, that compression was rapidly increasing, and were not a little apprehensive that as soon as it should reach the vessel she must go to pieces; a disaster which befel two ships this season, and of which there have been many examples on former occasions. In confidence, however, that the center of the bank, upon which we were moored, would be able to counteract the force of the pressure, we resolved to construct a basin, where we hoped the ship might be exposed to less danger. I viewed the magnitude of this undertaking with infinite surprize; an expedient I had indeed heard of, but the practicability of which I could

scarcely conceive. The labour and perseverance, however, of our indefatigable crew, were in the end crowned with success. The ice saws employed on this occasion were fourteen feet in length, seven inches broad, and two lines and an half in thickness, with teeth an inch and an half deep. In the upper end of the saw are two holes, meant to receive two handles which cross each other, and at which fifteen or sixteen men can work with ease at the same time. If the depth of the ice is such as to render it impracticable with the ordinary application of the saw, a couple of posts are erected with a cross beam, from which the saw is hung, having a large weight appended at its lower extremity, when, by hawling the instrument on the beam they operate with great effect against the ice. The jaws are of different sizes, corresponding to the various thickness of the ice. The sailors having traced an outline of the basin, cut the inclosed area into parallel sections, which they got rid of by sinking some and stowing others in a small piece of water that remained a head of us. We now unshipped the rudder,

rudder, and hawled the vessel into her new berth. This appeared to me an important though a very laborious operation; pity it is, however, that man should thus be degraded into a mere tool or engine of avarice; which, taking advantage of his poverty, drives him to the frozen regions of the pole, there to toil and suffer in administering to the luxury of a few effeminate individuals.

In order that the compression of the shoals might get from head to stern, the direction in which her power of resistance is most considerable, we laid the ship's bow towards the mouth of the basin. The construction of a Dutch Greenland-man is particularly adapted to the navigation of the ice; besides many other circumstances in which she differs from ships of the usual construction, she consists wholly of double planks of oak, extending all the way to her keel; a precaution of infinite moment in a compressed state, when she is not only in danger from the violence offered to her sides, but also from the shocks of ice which, drifting under the

shoals, in their efforts to come afloat, strike with considerable force against her bottom.

We received little molestation for some time; but, on the 6th, such was the violence of compression, that the shoal at the mouth of the creek crumbled in pieces and disappeared, the fragments forcing their way under the ice. But what was of more serious consequence to us, the bank itself soon experienced a similar fate, while the blocks into which it parted, rushed against each other with great velocity. The force of the pressure now falling upon our larboard quarter, the ship lay over, making herself a bed in the ice, which she ground to powder. The smaller ice accumulated in heaps, and the ship was screwed up in so dangerous a degree, that I could perceive her figure at times sensibly altered. She was labouring in the utmost distress, her convulsed frame began to make a noise similar to that of the capstern, when employed to raise an immense weight, and the compression of the shoals still increasing, we expected every moment the crisis of her dissolution.

In

In the mean time we raised from the hold some casks of provisions, as the means of our subsistence, when we should have the misfortune to leave our ship a wreck in the ice. It is true, we could take refuge on the shoals, and, with the assistance of our boats, survive the catastrophe for some time, by making our way from one island to another; but what deplorable hardships and toil seemed to await us in this inhospitable retreat! As we already conceived ourselves a company of unfortunate exiles, doomed to all the rigors of cold and famine, on the face of those frozen deserts, I wished to collect my thoughts, and, by the aid of reflection, to strengthen my mind against every approaching scene of misery to which I might be exposed. For this purpose, I brought under review many perilous situations from which I had escaped in former stages of my travels. I figured to myself the rash and wrathful savage of America, whose fury I had encountered; the anguish of famine I had felt in the plains of Texas; my captivity on the

250 VOYAGE TO THE NORTH POLE.

coast of Samar in the South-sea; the vengeance, ready to fall upon me, of the incensed natives of the Arabian deserts; the imminent danger of shipwreck I had run off Cape Tourmentes, near the coast of Africa; in fine, the rocks and tempests of unknown seas in the southern hemisphere; from all which the arm of Providence had exerted itself for my deliverance, and I still entertained hope, that the same over-ruling goodness would not forsake me now, an outcast amidst the eternal snows of the North Pole. We sat in mournful silence as we listened to the cracking of the ship, which seemed to complain under the pressure of the shoals. Her head was forced up by the ice, which had compressed her under the bow; but all our resources were at an end: this was a most dismal morning.

C H A P.

C H A P. XXXI.

After encountering a Variety of Difficulties, during which, by the indefatigable Exertions of the Crew, a new Basen is cut in the Ice, the Vessel is at length freed from her perilous Situation.

AT eleven o'clock, however, the intenseness of compression ceased; the activity of the ice, and the resistance of the vessel, counterpoised each other, and she remained quiet till six o'clock in the evening, when she again began to suffer the rude attacks of the shoals. The force of the compression, however, appeared to be somewhat blunted, and at one o'clock in the morning it subsided entirely; an interval of respite, which lasted all the 7th. At two o'clock in the morning of the 8th, the pressure revived, though not in the same immoderate degree; a high shoal dispersing the small wreck in its progress, drifted under our bow, and sunk some of the compressed ice, which surrounded

rounded the vessel. But such was the vast magnitude of this mass, that we had every thing to dread for her safety, should it happen to exert itself with violence against the ship. We had chosen in an evil hour, our station at this end of the bank, for in the course of these vicissitudes we saw channels and bays of considerable extent at no great distance. Shoals, however, were in a state of constant fluctuation, insomuch that the same places appeared alternately open, and occupied with the ice. Of all situations, perhaps, that at the extremity of a bank is the most hazardous for encountering the attacks of the ice; since there, from the vast momentum of the mass, compression is most likely to be severely felt. On this subject, however, it is extremely difficult to lay down any general rule; for if at the extremity of a bank the ship is in great jeopardy of being in the center of compression, there, in return, she has a better chance of doubling the cape, and eluding the danger intirely, than in any situation along side the ice.

Either

Either case, however, has its disadvantages. I am equally uncertain whether it is more eligible to construct a basin in ice of a very thick and firm, or in that of a more slender and brittle kind. One is apt to suppose that strong ice, being less liable to fail, promises to place the vessel in a state of greater security; but, then should the compressing power be of sufficient force to break the cohesion of thick ice, leaving the larger fragments entire, the ship in this case, being placed in the center of compression, if the surrounding ice be capable of greater resistance than herself, must infallibly be crushed to pieces. If on the contrary the basin is constructed in ice of less depth and solidity, the vessel may be in condition to give way to the force of compression; grinding and heaping up the small ice as she recedes, and in the mean time the impelling power may be gradually exhausted; but still, if in this conflict she happens to fall upon a fragment of much solidity, the issue may prove equally fatal.

Such

Such are the accidents by which ships perish annually in these seas; and as to the precise manner in which the disaster commonly happens, I have been told that the vessel is laid over on her side, with her head forced into the ice, when the power of pressure continuing to act abaft, at length prevails, and bulges her stern. It is to be observed, that in this position she presents the weakest part of her frame to the action of the ice, for her stern being either plain or concave, is evidently much less capable of resistance than any part of her convex face.

On the 9th, a bank stretching west from our own broke up, and the fragments, probably impelled by some anterior mass, divided ours into smaller pieces. At six o'clock in the evening the lofty shoal, under our bow, abovementioned, drifted seven or eight fathoms from its place, when we made a vigorous effort to recover our liberty, but without success; our best ropes and poles failing in the attempt, it was utterly impracticable to disengage her from the ice. We imagined

gined she stuck fast to ice under the water, which might form the base of some adjacent shoal. At ten o'clock the ice which had drifted a little returned, and heaping up the small wreck, began to press upon us with considerable force. Next day, however, the bank floated away intirely, when Providence at length delivered us from a most painful and dangerous situation. After having disengaged the ship, a manœuvre which our utmost exertions were but barely equal to, we found she had stamped her image on the ice, which appeared like pounded glass, with the same precision as if it had served her as a mould; a circumstance from which we may have some idea of the astonishing degree of pressure she had sustained; such facts will, I am afraid, scarcely be credited, but by those who have seen them. In the meantime our bank had been constantly shifting its position, veering from W. N. W. to N. $\frac{1}{4}$ N. W. and then returning to the N. W. Our latitude was $78^{\circ} 2''$; longitude 3° west; the variation of the needle 22° .

256 VOYAGE TO THE NORTH POLE.

22°. The weather for some days had been frequently thick and hazy.

We now warped the ship along the same bank, to a station which seemed less liable to be molested with shoals; and here we proposed to remain till the opening of the ice should afford us a passage into channels on the outside of the bank. For this purpose we constructed another bason, always taking care that the head of the vessel should lie towards the open sea, and her stern opposite to ice of moderate resistance, so that should compression return, she might recoil without injury to her hull. In a little time, we saw a shoal floating towards us; its progress was in a line nearly parallel to the bank, nevertheless, it touched and carried along with it one of our capes. Our bason was no longer in condition to be of any use to us, and we were again looking out for a new berth; when observing a creek, which communicated with a small channel, we made shift to enter it, and at last found ourselves in a state of some tranquillity.

As

As the haze was often so thick as to prevent our seeing at any distance, we dispatched a boat along side of the bank to reconnoitre our route. The bank altered its position considerably; and from the W. N. W. which was its former aspect, veered all the way to the east. The wind was constantly small and variable; nor did it freshen till the 17th, when it began to blow from the quarter of the South-east. In the mean time, it was evident from the appearance of the horizon, that it blew a gale at sea; the weather was by no means cold, and the thermometer stood above the frost. The snow that lay upon the ice, moistened for some days by the haze, now with a small rain began to melt. The wind increased, and on the 18th, blew somewhat fresh; when the shoals broke up and yielded us a free navigation. We embraced with alacrity this favourable change in the circumstances of the ice, and in spite of a thick haze, escaped with all possible speed from the neighbourhood of this formidable bank.

This was the first instance of a fresh wind, which was of any considerable continuance, since we could be said to have entered the ice; our former winds, as well as those we met with in periods subsequent to the present, had much resemblance to the gentle land breezes of summer. I remarked that the wind always declined towards evening; a fact which suggested a few reflections.

C H A P. XXXII.

Reflections on tropical Winds, and the Calms which almost constantly prevail near the Poles—The Voyage is pursued amongst the Ice—Singular Difference betwixt the Sea Wolves of the North and South Seas—The Traffic the Hamburgers carry on to procure the Fat of these Animals.

IN my travels round the world, I found that the east, or trade winds, prevail between the tropics over the whole

whole circumference of the globe, without any other variety than such as arises from storms introduced by westerly winds. These winds are evidently owing to the vertical rays of the sun, acting upon the land on either side of the equator, and which form that season named Hivernage in the torrid parts of Africa and America, and the western Monsoons in India and China.

Now, as the sun is the great efficient principle of motion and activity in bodies, to what shall we ascribe that lethargic calm, and that torpor, so remarkable within the bounds of the frozen zone, but to its extreme distance; whence it seems natural to suppose, that the elements approach nearly to a state of perfect quiescence in the regions directly under the pole.

We directed our course towards the west; but on the 20th, the wind continuing fresh, we were obliged to come to our moorings on a bank: we lay to leeward, but the ice making a movement to windward, in the space of four hours the wind

was on our side. Having coasted the ice three leagues, we again anchored to the leeward; but the ice still shifting round, in a few hours the wind blew along side the bank, when, dreading that we should soon be disabled from using our sails, and the wind abating a little, we got under weigh. A thick haze prevented our reaching a channel for which we made, and we were under the necessity of laying to. Next day we anchored on the same bank, but by this time it had lost its rotatory motion, and drifted uniformly in one direction. I have no doubt that these changes in the position of this bank, originated in the interference of some similar mass at one of its extremities.

The wind, in passing the quarter of the west, became calm, and returned in a very gentle breeze from the south, south-east. Though involved in a very thick haze, we endeavoured to profit by the present quiet state of the weather to pursue our course westward; in a higher wind we could have derived no benefit whatever
from

from our sails, by reason of the large ice so frequent between the banks. One of our boats plied at a distance a-head to direct our way, while the rest took us in tow. Our only beacon in this state of the atmosphere was a sort of white fringe at the base of the mist, which was occasioned by the reflection of the ice; and therefore the best method of avoiding the shoals was to steer the ship into the thickest of the haze. We moored upon a bank in order to give some respite to the crew, but a shoal moving with celerity towards us, we found it convenient to get under sail, by the speediest means in our power. The snow melted copiously, and I heard it fall like rivulets into the sea. We saw Sea-wolves, and a species of fish named Polscop, the first of the kind we had observed so far to the north. Our latitude was $77^{\circ} 15''$, our longitude $8^{\circ} 30''$, and the variation of the needle 26° . We saw likewise numbers of fir-trees drifting with the currents. The Polscops are seen in troops, blow at the surface, and leap above the

water like the Sea-hog. They are black, have a snout like a boar, but more conical in its form, and are about 20 feet long.

The Sea-wolf of the north differs in some respects from that of the South-seas; in the former, the fore feet are formed with toes, instead of a thick membrane, which composes those of the latter; the toes and nails are well formed, strong, and of a considerable length, and without any extension of a membranous substance beyond the nails. The hind feet are larger, and like those before, have the nails placed at the extremities of the toes. The extremity of the snout is larger, the higher part of the face more depressed, the eyes more prominent, the head and neck smaller, and the tail shorter and more round, than in the same animal in the southern regions. In this the tail is about $4\frac{1}{2}$ inches in length, and resembles that of the sheep upon the coast of Barbary; but the hair is shorter, thinner, and less handsome than in the former.

Ships

Ships come from Hamburgh, annually, in quest of the Sea-wolves, and generally return home full freighted with their fat; they are found in the greatest plenty, between the 72° and 74° of latitude, in the months of March, April, and May. The fishermen, who on this occasion never proceed far in the ice, relate, that the winds seldom blow against, but commonly in a line parallel to the shoals, when they are used to take shelter behind some point or promontory of the ice. At times, but rarely, a high westerly wind blows over the ice; circumstances which have a tolerable agreement with the idea that the atmosphere of the frozen zone is of a peculiar nature, affording little access to the high winds of the open sea.

Except intervals of haze, which were very frequent, we had fine weather, with gentle breezes from the south, during the remainder of this month. We continued our course south west, mooring occasionally on the ice; but the interferences of the shoals, and the fluctuating state of

the winds, frequently obliged us to get under sail with great expedition. The sea, however, was tolerably open, and our navigation but little interrupted. Meanwhile, the weather was by no means severe, and the mercury was rarely so low as the freezing point. But though the thermometer stood above frost upon deck, the haze froze at the mast's head, and the icicles fell in abundance during the whole inferior day. On the 26th, the sun's rays were strong enough to cause an exhalation from the sea water which had been spilt on deck, and the ships timbers were warm to the touch. On the 3d of July, the mercury which had pointed 7° , all the inferior day, at ten o'clock in the evening rose in the sun to 33° . It is very remarkable, that ever since we entered regions less occupied by the ice, and consequently exposing a greater surface of water, the barometer even in our longest intervals of fine weather, never rose so high as where the ice was more universal, though accompanied with weather much less serene; an appearance which

which I regard as almost conclusive of the specific atmosphere of the ice. The variation of the barometer from 79° to 80° of latitude, appeared to me to be 29 inches, and in our present cruise, 28 inches nine lines.

C H A P. XXXIII,

Passage towards the Coast of America—The Land of Gallhamques is passed, but is not seen, on Account of an impenetrable Fog—Reflections on the Formation of the huge Mountains of Ice met with on the American Coast.

THE 1st of July we were in latitude 76° , longitude 11° , and the variation of the needle was 28° . The sea frequently presented us with red fleshy substances, in which, according to some, consists the natural aliment of the Whale; it was now a very considerable time since we lost sight of that animal, but our course

course was towards the coast of America, in the vicinity of Gallhamsque, a situation very favourable to the Whale fishing in the month of July, and accordingly on the 2d we caught two fishes.

It now became much more necessary to be cautious how we interfered with the shoals, than in the month of May; as they were stripped of that thick snowy covering, which in an early period, contributed to render the shock of less dangerous consequence. The ice derives from the heat of summer, a kind of elasticity which increasing the cohesion of its parts, renders it still more formidable to the navigation. Besides, as the bases, as well as the shoals themselves, in the western regions of the ice, are much more extensive than in the seas of Spitzberg, if a ship comes upon them with the wind, she is in danger of oversetting, as on a lee-shore; an accident that can only be remedied by a very tedious and troublesome process. It was occasionally necessary, however, to penetrate where it was choaked up with small ice, and in this case
we

we ran the ship against the windward ice, which the shock separated from the other bodies to which it was attached. The ship, in recoiling, now pressed against that to the leeward, and swept it to a distance. In such situations we manœuvred the sails, as has been already described.

The thick fogs, so prevalent in these regions, frequently rendered our navigation extremely difficult; but at the same time they seemed to become temporary, in proportion as we proceeded towards the west; an alteration probably owing to our being in the vicinity of the land of Gallahamsque. The sea presenting itself sometimes green and sometimes of a whitish colour, we sounded frequently, but without finding bottom. The vermilion colour of the horizon gave notice of a land atmosphere, while the birds flying backwards and forwards in the same direction, showed it was at no great distance.

On the 8th, our latitude was $75^{\circ} 6'$, longitude 13° ; the thermometer, exposed

to the sun at our inferior noon, rose to 31° , we still saw drifted firs.

The ice had begun to break up in all directions; and the explosion it made, which was heard several times in the course of an hour, was like that of a cannon, or the fall of a high pile of timber; a noise which was repeatedly echoed from the adjacent shoals. The shoals are composed of different strata of ice, united by compression, and consolidated in one mass by subsequent freezing. The eminences observed on the upper, and which are equally frequent on the under surface of the shoal, arise from compression, and are nothing but detached fragments of ice, which had been hurled by concussion, partly above and partly below, while in both situations they come to be cemented to the principal mass. I observed, in the lofty shoal abovementioned, a composition of different fragments, which had been forced up and down in the manner now described, and thus added to the elevation of the whole above the surface of the water.

As

As soon the heat and moisture of summer strip off the covering from the shoals, the cement, by means of which their several parts cohere, is dissolved, their union ceases, and the eminencies, which rise above the surface, depending on the same principle, tumble down. The shoal in the mean time is often unequally discharged of its burden, and having appendages below, which have a tendency to float, it dips at one end and starts at the other. The elevated part, exposed to the action of the air, and receiving no support from the water, becomes brittle and breaks off, especially if it is extensive and happens to be loaded with loose ice at the extremity. In a shoal thus consisting of a series of different parts, we often find that the lower strata extend only partially over the basis of those immediately above them; now, after the snow on the top comes to be dissolved, the shoal emerges in proportion to its diminished gravity, and the higher strata cease to bear upon the water; in the mean time the waves repel the sides

of the ice that rest upon their surface; when, at last, the incumbent mass, being only sustained at its center, falls in a thousand pieces.

These particulars, however, simply apply to ice in the form of shoals; for such is the enormous extent of what is termed a bank, that it is exposed to the same accidents only in a very inferior degree. Their destruction seems to be occasioned solely by their mutual interferences, and the rolling of a high sea after it has been agitated by a strong gale of wind. Observing the edges of the ice immediately applied to the surface, eaten or carved into festoons, I wished to know whether this appearance was produced by heat or the friction of the water; but the thermometer, plunged into the sea, rose from 3° to $4^{\circ} \frac{1}{2}$, and I believe the air in these regions is never of a high enough temperature to dissolve solid ice.

I was a good deal surprised, that in this navigation we met with nothing similar to those mountains of ice, which, issuing from Hudson's Bay, and Davis's Straits,
float

float along the coast of America. The highest ice I have seen in this voyage was only about thirty-five feet above the level of the sea, an elevation which bears but a small proportion to that of those huge masses. I am satisfied the little mole hills of Spitzberg are generated from compression; but I find it more difficult to explain in what manner the icy mountain, so often seen in the American-seas, grows up to such an amazing height; it seems impossible to conceive a degree of cold intense enough to freeze water at so great a depth. Davis's Straits, however, if we may believe navigators, contain little ice, but in the form of mountains, or shoals of very moderate dimensions; and, from the particulars they relate, I am led to conclude, that the mountain of ice is a compound body made up of parts, which once existed independently of each other. When the mariner finds it expedient to moor his ship on one of these floating masses, he observes that the pickax makes the whole to resound, shake, and sometimes to detach fragments, which
roll

roll into the sea; circumstances which evince the unincorporated structure of the mountain, and consequently that nothing but compression can account for the original union and cohesion of its various parts. In risking a conjecture on this subject, permit me to suppose, that in the northern regions of America there are very extensive lakes, giving rise to deep and copious rivers, which are much contracted at certain intervals; that the ice in its descent from those great inland reservoirs choaks up the narrow passages, while fresh supplies, constantly carried down by an impetuous current, and forced to seek an egress below the obstruction, adhere from pressure to the accumulating mass; but, in this situation, from its specific levity, the ice gradually emerges high above the water, and in process of time bursts into the ocean in the form of a majestic mountain.

Continuing our cruise towards the west, our latitude on the 11th, and 12th, was $74^{\circ} 40''$, our longitude from 15° to 16° by the meridian of Paris; the variation

riation of the needle 30° towards the north west, according to the report of the seamen, it is 33° close into the land of Gallhamfques. Owing to a most obstinate haze, I was denied the pleasure of viewing this coast; but we spoke a vessel which had observed it ten leagues west from where we fell in with her.

C H A P. XXXIV.

Description of the Coast of Gallhamfques—Importance of the Whale Fishery, and the Encouragement it receives from different Nations of Europe—The Practicability of penetrating to the North Pole itself further investigated.

THE shores of Gallhamfques are frequented annually by the whale fishers, who have coasted the land from the 76° to the 70° of latitude, where it is separated from Greenland by a strait of more than 25 leagues in breadth. Hitherto, no navigator has passed

this strait, but it is supposed, with some reason, to communicate with Baffin's Bay. It is observed by the fishers, that the Whales struck at the entrance of Baffin's Bay, not far from Women's Island, swim in the direction of this land, where the sea spreads out to such an extent as to have no visible boundary. The Whales killed on the coast of Gallhamfques, come from the west south west, and are exactly the same in size and shape with those of Davis's Straits. Now it is to be observed, that none of the same description are to be found, either on the east coast of Greenland, or at Cape Farewell; whence I conclude, that they issue through that opening where the coasts are seen to terminate under the latitude of 70° . Indeed it can scarcely be doubted, that their progress is from Baffin's Bay, and Davis's Straits, since it is certain that Whales are caught on the coast of Gallhamfques, with harpoons in their flesh made of stone, and in all respects similar to those used by the savages of Greenland.

The

The coast towards the north is not very high, the ground seems tolerably level, and the soundings begin five or six leagues from land; southward, however, the land consists of high round hills, like those of Spitzberg, and off that part of the coast there is no bottom. Fifteen leagues from shore, in the east south east, and under $71^{\circ} \frac{1}{2}$ of latitude, lies a sand bank, whose mean soundings are ninety fathoms. But the ordinary navigators of those seas, more bent on harpooning the Whale, than on examining the coast, have no desire to go on shore, and give themselves very little trouble respecting the circumstances of this navigation. My indefatigable Dutchmen having spied a Whale, immediately gave her chase; giving me leave to ruminate on my disappointment at not being permitted to explore a coast, which lay within so small a distance, and the particulars of which are so little known. I was much pleased however, that an opportunity had occurred of satisfying my own mind as to its actual existence. The longitude of Gallham-

sques, according to observations made in going and returning, which I compared and corrected with all the accuracy in my power, is 17° west, with a latitude of $74^{\circ} 20''$, a position which agrees tolerably well with the report of such navigators, as lay it down under the same parallel of the meridian with the island Tenerif. But with respect to that part of the American continent found on the charts under the latitude of Spitzberg, and said to have been discovered in the years 1655 and 70, the most experienced and intelligent navigators of my acquaintance seem to have no knowledge of it whatever. For my own part I can give no credit to the report; since in those days mariners seldom ventured to penetrate into the ice, much less to pursue a western navigation; probably the coast of ice, having been termed by the whalefishers the west coast, had led to this mistake; and accordingly we find a coast actually traced in this very spot on some of the old Dutch charts. I have no doubt, however, of the existence of land in the quarter

quarter of the north, for I have observed on different occasions, shoals covered with earth and sand to the north and north east of our present cruize. Now the direction of the currents in those parts being towards the south, this ice could not possibly have come from any other than the quarter of the north, since it was plainly too far to the west to have been detached from the seas of Spitzberg. Besides, the immense number of shoals and banks of ice, which cover the surface of the ocean all the way to these isles, could not have failed to intercept its progress. Should it be alledged that it might have been drifted by a northern current from the shores of Spitzberg, and afterwards circulated hither, still it is evident that the southern currents, which must in this case be supposed to have received it, would have floated it down with much less western longitude.

The fight of the Whale had carried us backward towards the east, from shoal to shoal, without the smallest success.

The sea was become perfectly open, and the Whale seemed to have taken his final leave of us. But, were the seasons in general equally productive with the present, the whale-fishery would constitute a very lucrative article of trade. Some vessels returned home this year from the ice, with a profit of 300 per cent. to their owners; a success, however, which is extremely precarious, in so much, that the speculator in this branch of traffic, often suffers a loss of more than one half of the money employed in it. It is, nevertheless, an excellent nursery for seamen, and in this view, as it requires little expence, besides what is necessary for provisions and the pay of the ship's company, is regarded by all the northern powers as an object of great public utility. Hence the parliament of Great-Britain grants a bounty to such of their ships as remain in the ice until the 20th of August. The king of Denmark encourages the same species of industry in his subjects by his own example; equips ships annually for the north seas, and carries

carries on the business upon his own account: his Swedish majesty, I am told, has adopted a similar policy.

Recollecting now the ardent desire I entertained when beyond 81° of latitude, of attempting to penetrate to the pole, I am desirous to estimate by some data the practicability of this project, and therefore shall throw into one view my observations on all the circumstances, particularly the movements of the ice. I am convinced from the prodigious force with which I have seen the shoals act upon each other, that though the ocean may be caught, as it were, by surprise, in the midst of a severe winter, yet from the convulsions which prevail incessantly among these enormous masses, it cannot remain long under arrest; indeed the structure of the shoals, which consist, as has already been observed, of many different parts, seems sufficiently to shew that this is actually the case. The small ice too, which we saw drifting in chips with the currents, is generated from the surface of the channels, which are occasionally frozen,

but afterwards broken and set afloat by compression. Now, the motion of the water being the primary cause of all the revolutions of the ice, and as wherever there is a sea there will be currents, it is evident that compression must take place over the whole frozen zone, not excepting the pole, provided the sea extends to that region of the globe; banks and shoals, wherever they exist must have room to move; nay, their constant changes originating with the currents unavoidably produce it; whence I infer, that the sea is not one solid mass, nor is navigation impossible even at the pole. Beyond 81° of latitude, I saw the sea discharged of those vast shoals which had lately composed one compact body of ice, but which the currents had broken up and drifted northward. They had consequently found room, and a sea but partially frozen, in the vicinity of the pole. In the year 1773 some Dutch vessels found it possible to return from the very center of the ice, so late as the end of November; and it appears from the voyages made by two

Dutchmen, Hamsterkerk and Baren, to the north east of Nova Zembla, as well as from the journals of Russian navigators, employed to survey the distances between the rivers Lena, Junisen, and the Oby, that in those seas they were often shut in, and as often liberated, by the commotions of the ice; whence we may observe, that the changes and revolutions so incident to the shoals are prevalent in the high latitude of the Siberian seas, and north from Nova Zembla, even during the strong frosts at the end of the month of November.

C H A P. XXXV.

The Seas of Siberia and Spitzberg are not the best calculated for a Passage to the North Pole—The Compression of the Ice and every other Obstacle may be surmounted in such an undertaking—The Precautions in Point of Season, &c. which should be observed in a similar Expedition—The Vessel directs her Course for Europe, and passes by the Island of John Mayen, which is described.

WERE I, however, to conduct an expedition to the pole, I should not esteem either the sea of Siberia or that of Spitzberg, as the most favourable to my voyage; the Siberian sea being shut up towards the south, and affording little egress to the east and west, must be perpetually loaded with ice; while that of Spitzberg, receiving constant supplies, from the eastern currents, to its own shoals, is equally ineligible. Between
Spitzberg

Spitzberg and Nova Zembla, however, lies a large tract of sea, which from its great extent and the outlet it affords to the ice, would in my opinion be found much more practicable. The experience of the navigators I have cited, and my own observations on what passes in the ice, shew how necessary it would be to keep at the greatest possible distance from land. I do not suppose, however, that there exists to the north north west of Nova Zembla any sea entirely open; I only wish to infer, that the sea in that quarter being but moderately furnished with ice, is probably not less susceptible of navigation, than we find it about twenty leagues to the north west of Spitzberg.

I am of opinion that it is absolutely impossible to navigate the sea of Siberia, so as to reach India by a north east passage in one season. This part of the ocean, for reasons I have mentioned, must be eternally crouded with shoals of ice; a situation in which a seaman being obliged to pursue a very circuitous course, and to navigate his ship with little sail, even
under

under the mildest and most favourable breezes, cannot be supposed to make speedy progress. Nevertheless, I think it by no means impossible to perform five hundred leagues in the same direction in one season, across a sea, as I have presumed it to be, but moderately incommoded with ice.

Besides that the ice, as has been shown, occupies the same spot, but in a transient manner, and that, from its constant fluctuations, ships far from land seldom remain locked up for any considerable time, the resources of the saw, cables, and poles, enable the sailors to open the ship's way through any moderate obstruction. Of all the expedients I have seen practised on this voyage, that of the saw, provided the ship does not labour under compression, as it extricates the vessel from confinement, seems to me the most important. Perhaps, in cases where the ice may be of too great a depth for the application of the saw, a separation might be effected at the articulations of the shoals, by a very powerful species of pulley.

But,

But what I regard as the chief and most invincible obstruction of all, is compression; and therefore, besides that the ship, destined for the pole, should be constructed in the best and most impregnable manner, I should propose to have on board a small decked vessel, having her sides bound, and her keel shod with iron, and at the same time light enough to be capable of being hoisted on the ice. With this resource, should the ship be exposed to the last misfortune, I mean that of bulging among the shoals, as her auxiliary bark would be portable over the ice, as circumstances might require, and consequently little liable to a similar accident, the voyage might still be continued. Were the navigator, I imagine, thus equipt, to hit upon a tract of sea exempted from any violent agitation, the expedition could scarcely fail of success; and having visited the pole, he would find little difficulty to return in safety, by crossing through the shoals of Nova Zembla to the White sea.

If

If ever a navigator should be found hardy enough to undertake this curious passage, he should sail towards the end of February, and, passing along the west of the German Ocean, endeavour to get in view of the ice by the end of March, in order that he may be in a situation to avail himself of the first opening of the shoals. This is the period of rendezvous for such as are employed in the Sea-wolf fishery, at the island St. John Mayen; and the Spitzberg Whale fishers frequently reach the 80° of latitude, by the 15th or 20th of April. The ships destined for Davis's Straits beyond the latitude of 71° , sail from Europe in the first days of March, though the place of their destination is much more subject to boisterous winds than the north seas. The month of March, therefore, or the beginning of April, is by no means too early in the season; especially if we consider that the most serene weather in those regions occurs in the months of April, May, and June, and of what consequence

sequence it is in this navigation to have a distinct view of surrounding objects. The latter part of June, and the whole of July and August, are thick and rainy; but then I am assured, that the voyager leaves the haze behind him as he rises into a higher latitude, and indeed it seems to consist with reason, that as the sun's rays diminish in force, they should exhale a proportionally smaller quantity of vapour.

On the 14th our latitude was 73° , longitude 7° , and consequently we had made considerable progress on our return eastward. We now took in fresh water, which is an operation of little labour or difficulty. After laying the ship along side a bank, we opened in the snow a number of small channels, which conducted the water from its course into pools prepared to receive it; when having hoisted out and filled our casks upon the ice, they were rolled back and put on board the ship. The ice is of an even surface, a circumstance which facilitates the process.

My

My Dutchman being satisfied with his cargo of fish, prepared to withdraw from the ice on his return home; and on the 18th we saw John Mayen's island, situated south $\frac{1}{4}$ south-west, at the distance of ten leagues. The northern point of this island is in the latitude of 72° , and in $9^{\circ} 30''$ west longitude; the variation of the needle 23° . It may easily be distinguished by what is called Bears's Mountain, which is very high and abrupt. This mountain seems to be about two short leagues in circumference at the base, and its form is that of a sugar loaf, terminating in two sharp points at their summits. The ridge seems to be less steep towards the east than towards the west. It stands half a league from the north east corner of the island, and is seen at a great distance. In the vicinity of Bears's Mountain, we observed three small round hills. St. John Mayen's island is in length nine leagues, from the north east to the south west extremity, and two leagues in breadth. Ships come to anchor in

in the north west of the island, opposite to the most northerly of the round hills. In front of the same little rising ground, there is likewise anchorage; but by no means equally good with the former.

C H A P. XXXVI.

The Regions of Ice are passed, and the Fact completely established, that the Congelation of Water forms a peculiar Atmosphere—Several new Species of the Whale are seen and described—Sensible Difference between the Northern and Southern Climates near the Poles—Passage into the German Ocean, and Arrival at Amsterdam.

WE had now a view of the sea in its ordinary fluid state; one chain of ice only was seen towards the east, while a considerable swell on the surface shewed our proximity to the open sea. Instead of our former haze, numbers of

thick white clouds appeared floating in the regions of the air; and the state of the weather resembled that of a day in autumn. In the course of some hours, however, we had snow, which fell in small flakes, with the wind at north east. Our snow in the earlier part of May, as I have already observed, imitated the down of the caterpillar, or thin scales shaped like crosses; while that which fell during a haze, was in the shape and size of a pin. The configuration of the particles of snow, a small drizzling rain, and intervals of a lowering sky, with the fall of the barometer, were clear indications of a palpable difference between the atmospheres of water and ice. I cannot regard so material a change in the nature of the air as accidental, happening as it did at the moment of our transition from the climate of a frozen to that of a fluid sea.

On the 19th we doubled the last chain of ice, situated towards the East; the waves, recoiling from the thaw, caused a very rough sea in the same quarter; but the swell subsided in proportion as we penetrated

netrated the main sea. Next day a high rolling sea setting in from the east north east, that is to say, from the northern cape of the great continent, the ship rolled in a most disagreeable manner; but this, too, generally diminished as we doubled the main land. Three particular species of whale, the *Beaupoisson* or fine fish, the *Nordlaffen*, and Cagelot, are seen occasionally in this part of the ocean. The first is the animal of the largest dimensions that has hitherto been discovered, being about fourscore feet in length; he furnishes, however, a smaller quantity of blubber than the ordinary whale, and the whale-bone is less elastic. This sea monster is but seldom seen, and is probably the same mentioned by Ægide, the Danish missionary in his voyage to Greenland.* The *Nordlaffen* is of a smaller size than the common whale, and differs from her in point of respiration; which the first performs by blowing the water forward, and the last, by blowing it backward to-

* Perhaps this is the fish which has given rise to the account of the fabulous monster denominated the *Kraken*.

wards its tail. The Cagelot, in place of whalebone, has forty-eight teeth, and in this respect differs likewise from the common whale; the teeth consist of a fine species of ivory, which I have seen employed as the materials of very handsome buttons. These three species of fish are seldom met with in the interior regions of the ice.

This is a very dismal climate; for as soon as the wind gets a little easterly, we are sure to have a little drizzling rain; and though we are at times favoured with the sun, the air is habitually damp, and much more disagreeable to the feeling than that of the ice.

On the 24th, our latitude being $66^{\circ} 18''$, and longitude 6° , we were nearly under the same parallel with Iceland. Though the thermometer had been rising ever since we reached the open sea in lower latitudes, our climate was by no means improved. At the island of John Mayen, the mercury varied from 2° to 4° ; and here it stood from 9° to 11° above frost. In this quarter we prefer a west to an easterly course, on account of the frequency of the west wind; besides which, we are not

a little apprehensive of rocks and currents in the gulph of Drontheim; whence it is almost impossible to retire with a wind of that description.

I made it my constant business, on this voyage, to compare the northern with the southern climates, and am now satisfied they are very dissimilar. Judging from the thermometer, the temperature of the air, in latitude 70° north, approaches that of 50° south, by a difference of only 4° or 5° . In the same southern latitude, the barometer was so low as 26 inches 10 lines, whilst its smallest elevation in the north seas was 28 inches 4 lines. I believe these two latitudes 70° north and 50° south, to be pretty similar in point of wind and weather, though in different periods of the year; the end of April, or the beginning of spring in the north, corresponding to the end of December, or the month of January in the south. I admit, however, in comparing these equivalent latitudes, that I met with less hoar frost, and an inferior degree of cold south, than north, in corresponding seasons.

The

The wind varying little from the quarter of the south, we were threatened with a tedious passage. At the opening of the coast of Iceland and Etland isles, we felt the ferocious south-west blasts of Hudson's Bay and Davis's Straits. Probably the bold coasts of the above islands contributed to produce a very high sea; but the wind shifting to the northwest, the swell abated by the time we came opposite to Etland. On the 31st of July, we entered the German Ocean, and saw the termination of a very long day. We were now obliged to place a candle in the binnacle, to shew us the compass; although on the preceding day I was able to read by the twilight at twelve o'clock at night. Meanwhile our latitude was $62^{\circ} 25''$; the Sun's declination $18^{\circ} 21''$, and consequently $9^{\circ} 14''$ below the Horizon. Thus one day, consisting of 96 times four and twenty hours, came to a termination. Having passed without being able to discover the Etland Isles, the sight of Mackerel satisfied us that we were now within the boundaries of the German Ocean. I am convinced

convinced, by fresh observations, that here the direction of the currents is towards the north; the wind varies little from the south, shifts at times towards the west, but rarely towards the east point. The atmosphere becomes less damp and unpleasant. We took all possible advantage of the wind consistently with our keeping in a western course. On the 5th of August we reached the end of the Dogger-Bank, in thirty-six fathoms water; but the wind being at south south east, we soon lost it. On the 11th we were on the southern quarter of the same bank, with eleven fathoms. Towards the south west the bottom is mixed with small flint stones, and is the same as at little Well-Bank; but, towards the German coast, it is composed of a strong yellowish clay. At the southern extremity of the bank the currents seem to bear east north east; and as we leave it behind us the sound increases. The 14th the lead gave us seventeen fathoms at Breeveertien, a bank which rises from the province of Holland, like the bill of a bird, and runs out to a point towards the north east. As soon as we came in view of

the isle of Texel, we took a pilot on board ; but the currents having carried us more to the eastward than we imagined, we found, to our surprise, that we were east from the entrance to the roads. The wind being a head, we entered the Zuiderzee, by a passage lying between the islands Flieland and Tereschelling, which we got along side of next day. Flieland maintains one, and Tereschelling two light-houses ; from the last of these islands extends a sand bank, exhibiting breakers, a league into the sea. The wind continuing still right a head, we were obliged to tack in a very confined channel ; the direction of which is pointed out by buoys stationed at the end of the bank. By the time we reached the coast of Friseland, and came in view of the town of Harlingen, which is a station for ships of war, we were in condition to tack with more ease and advantage. Entering a new channel we came in sight of the city of Enkuisen, and the little isle of Urk, and arrived without inconvenience at Pampus Bank, where ships frequently get aground. This bank afford-
ing

ing a sufficient depth of water for ships of small burthen only, is to be considered as the strong bulwark of Amsterdam. In conveying ships of war from this department to the places of their destination, the Dutch employ floating machines, named Camels, which being laid under the vessel at low water, owing to their flat and extended bases, float them considerably at the return of the tide. I proceeded to Amsterdam, at the distance of five leagues, where I had the pleasure to receive fresh instances of that kindness and civility I had experienced previously to my departure for the North Seas. I saw the city of Haerlem, and the very agreeable environs of Bloumendal; but as I found no opportunity at Amsterdam of crossing to the English coast, I set out for Rotterdam, where I met with a vessel ready for the island of Guernsey. Rotterdam is a very handsome town, extremely commercial, and, in point of size, yields to none in the United Provinces but that of Amsterdam. Here the English appear to carry on a very considerable part of the trade, and upon a
more

more extensive scale than in the capital. I descended the Meuse to Brille, a small fortified town near the mouth of the river, and set sail the 9th of September.

C H A P. XXXVII.

Passage from Rotterdam, through the British Channel, to the Island of Guernsey, and from thence to the Island of Breha, in Lower Brittany—Arrival at Brest.

IT requires considerable attention in the pilot, on this passage, to avoid the banks of Zealand and Flanders, as well as the points of the Goodwin Sands, which form, towards the sea, the road of the Downs. Having fallen down the English Channel, until we came in view of the Isle of Wight, we crossed over to pass into the race of Alderney, a strait formed by this isle and the coast of Normandy; we entered the race late in the evening with little wind, and it was our intention, if we could gain the point

point of the isle of Sark, to pass the remainder of the night near the land, out of the reach of the currents; but by the time we came in sight of the Sark, the wind fell to a dead calm; a thick haze succeeded, and being now within the Race, it would have been highly imprudent to have thought of a retreat. Mean while we were the sport of the currents, and became entirely at a loss what course we ought to steer; in general we made it our business to keep as much as possible in the line of the shore; but about ten o'clock in the morning we discovered ourselves drifting fast upon a reef of breakers; we hove the lead and found only ten feet water, the ship drawing nine and an half. I am unable to imagine by what accident we escaped, on this occasion, without touching the bottom; perhaps the recoil of the waves might, in a critical moment, have driven us to the windward of the rocks. We took this reef for the great Amphroques, but found afterwards that it is a chain of rocks, situated in their north east, which are covered at high water. We passed a very
dismal

dismal night; and upon the return of day a calm and haze still confined us in the same perilous situation. After a small shower, however, the wind sprung up and we reached the Isle of Sark, between which, and the Isle of Arn, we entered a passage called the Great Ruau. We coasted the Sark till we came almost opposite to St. Martin's point, in the southern extremity of the Island of Guernsey. This passage, from a long chain of rocks which stretches to the southern point of the Isle of Arn, is by far the best from the Sark to Guernsey. We steered upon the points of St. Martin, east, from which we dropped an anchor undisturbed by the currents, and waited till the return of the tide enabled us to proceed along the coast and enter the harbour. In gaining the anchorage at St. Martin's point, we made it our business to keep at an equal distance between that point and a small sandy creek in the north east, above which, and on the highest part of the creek, stand a church and guard-house; the south point of a reef of rocks, extending from the Isle of Arn, serves to lead

lead the eye to the guard-house, which stands near a mill on the Sark; and in clearing the rocks, the Arn light-house begins to be seen. The coast of Guernsey seems to be wholly inaccessible, except at the sandy creek above-mentioned, named, I believe, St. Nicholas, and the harbour, opposite to which, on a small isle, stands a castle for the protection of the shipping. The harbour is formed by two piers making two sides of a square, the passage into which might be intercepted by a chain. It affords accommodation to merchant-ships only, and even the largest of these are obliged to break bulk before they can enter it; some remain at anchor under the fort. The capital of Guernsey is a large open town, populous, and tolerably well built; it has much resemblance to the ancient town of Lower Brittany, while the country in general differs little from such parts of France as are situated on the opposite side of the Channel. The people, whom I used to regard as little better than a hord of smugglers and pirates, have, to my surprise, none of those

those rude surly manners which seem to characterize the English populace; but, on the contrary, a sincere and unaffected affability of character, analogous to the primitive manners of the Franks. I was admitted easily into society; mixed in family parties; and, in short, was entertained in all respects more like a relation than a stranger. Here is the first example I have met with of citizens of credit and character forming themselves into a club, the object of which is to relieve such of their members as happen to be reduced to necessitous circumstances: into this society no seaman is admitted. The pension granted to the unfortunate is proportioned to the age and particular description of the petitioner's case. I attached myself to the society of the Bourgeoisie, or citizens, alone; and was not a little astonished at the luxury observable in the richer sort. The militia, consisting of every man able to carry arms, is under the best discipline; and the people at large seem to have the sentiments of patriotism engraven on their hearts. I cannot help, however, regarding the bold rocks and cur-

rents which surround their shores, as the strongest sinews of their defence.

Here I met with some French vessels from Breha, on the coast of Lower Brittany, and embarked for that island. I proceeded afterwards in a canoe to Pampoul, whence I continued my journey by land, and arrived at Brest on the 27th of September, 1776.

F I N I S.

TO THE NORTH 1853. 303

which furnished their food, as the
Hutchinsons of their descent, and
I met with some French vessels
from Beche, on the coast of Lower Brazil,
and embarked for that island. I proceeded
afterwards in a canoe to Lampon, whence I
continued my journey by land, and arrived
at first on the 27th of September, 1770.

12 AP 58

2/112

